

THE AMERICAN YEAR BOOK

A RECORD OF EVENTS AND PROGRESS

1919

EDITED BY

FRANCIS G. WICKWARE, B.A., B.Sc.

WITH COÖPERATION OF A SUPERVISORY BOARD
REPRESENTING NATIONAL LEARNED SOCIETIES



NEW YORK AND LONDON
D. APPLETON AND COMPANY

1920

COPYRIGHT, 1920, BY
D. APPLETON AND COMPANY

Printed in the United States of America

PREFACE

With the publication of this volume, covering the events and progress of 1919, the AMERICAN YEAR BOOK reaches its tenth issue. In the last five issues, and particularly in the last three, the scope of the YEAR BOOK as originally conceived has been considerably altered. The influence of the Great War assumed increased importance with each succeeding year, becoming finally the dominant factor in practically every field of human endeavor. It was necessary, therefore, to give progressively greater space to the war itself, to cover foreign affairs more thoroughly, and consequently to alter the original space allotments of many of the departments of the YEAR BOOK. In the present issue the war's aftermath affects the content of the book quite as profoundly as did the war itself. Nevertheless, the organization of the work remains substantially unchanged, and its fundamental purpose remains as defined in the preface to the first issue:

"The AMERICAN YEAR BOOK is intended for the needs of writers and searchers of every kind. Because of its inclusion of scientific subjects, it has been necessary to limit the political and statistical material which is the staple of many annual handbooks; the book does not aim to treat everything that could be useful, but throughout to select from the enormous mass of details those things which, in the judgment of experts in each field, are most significant, most permanent in value, most likely to answer the searchers' questions.

"The AMERICAN YEAR BOOK does not aim to be a rival of other annual publications, either foreign or domestic. Details as to elections, the *personnel* of state and municipal governments, political personalities, societies, and educational, literary, and scientific institutions have deliberately been reduced, in order to make room for material of a kind not found in most of the annuals. The AMERICAN YEAR BOOK appeals first of all to students in all fields, who wish a record of progress, not only in their own, but in other departments of human endeavor. It is intended, also, as a handbook for busy men, editors, contributors, professional men, teachers, scientific workers, engineers, practical and business men, who wish to verify or confirm points that arise in their minds; and to serve as a handy book of reference material settling questions of fact. Throughout the work the object has been to make the volume convenient for the user; hence the YEAR BOOK is arranged on a plan entirely unique in publications of this general character. It is intended to make reference easier by subdividing material into departments, by putting cognate subjects into close association, and by liberal cross-references, making it easy to turn at once to the discussions relating to any subject. A full and carefully analyzed index is also provided in order to open up all remote connections and relations of a topic. This

PREFACE

arrangement by groups of affiliated subjects, instead of haphazard or alphabetical succession of topics, is more convenient, and at the same time more scientific."

The Supervisory Board of representatives of national learned and scientific societies, officially known as the American Year Book Corporation, continues actively to assist in the preparation of the YEAR BOOK. The members of this Board, which originally projected the work, remain individually responsible for the scope and content of the reviews of their respective fields; several are themselves contributors; many have coöperated with the Editor in securing contributors; and all have assisted the Editor with criticism and counsel. The Supervisory Board has now forty members, representing forty-four societies.

One hundred and eighteen contributors have coöperated in the preparation of this issue. All are experts in their special fields, and the complete list printed on a subsequent page contains many names of eminence.

The outstanding feature of the present issue, of course, is the history of the framing and enforcement of the peace treaties with which the Great War was ended. Scarcely less important is the survey of the manifold and acute national problems involved in the return of the United States to a peace basis. A section of special interest and permanent value presents a comprehensive statistical summary of the Great War, with particular attention to the part played by the American forces. Notwithstanding the emphasis on after-war problems, however, no element of our normal life has been slighted, and the volume carries the customary comprehensive review of American events and progress in politics, economics, sociology, the sciences, the arts, and the humanities.

The acknowledgments of the Editor are due, not only to the contributors and members of the Supervisory Board, but also to the many public officials, Federal, state, and municipal, who have courteously responded to requests for statistical and other data, and to the readers who have offered disinterested criticism of previous issues.

TABLE OF CONTENTS

THE AMERICAN YEAR BOOK is arranged in thirty-one departments, in which are grouped articles on related subjects. In the following Table of Contents only the main topics in each department are listed; a complete index will be found at the end of the volume. SMALL CAPS indicate titles of separate articles.

PREFACE	PAGE iii
SUPERVISORY BOARD AND CONSTITUENT SOCIETIES	xi
CONTRIBUTORS	xiii

I. AMERICAN HISTORY 1

Organization and Work of Congress.—The Sixty-Fifth Congress, Third Session.—The Sixty-Sixth Congress, First Session.—The Sixty-Sixth Congress, Second Session.—The President and Congress.—The Treaty of Peace and the League of Nations.—The Peace Treaty in the Senate.—The Reservations.—Problems of Reconstruction.—Dissolution of Special War Agencies.—Cost of Living.—Regulation of the Meat-Packing Industry.—The National Government and Labor.—The President's Labor Policies.—Labor's Legislative Programme.—Strikes.—Industrial Conferences.—The Administration and Railroad Policy.—Private Plans of Railroad Control.—Plumb Plan.—Pending Legislation.—Railroad Administration Finances.—Wages of Railroad Employees.—Telegraph, Telephone and Cable Systems.—Merchant Marine.—National Defense.—Demobilization of the Army.—Settlement of War Contracts.—The Army Court-Martial System.—Permanent Military Policy.—The Naval Programme.—National Finances.—Revenue and Expenditures.—Estimates for 1920 and 1921.—Victory Loan Act.—Revenue Act of 1919.—Financing of Foreign Trade.—A National Budget System.—The Prohibition Amendment.—Prohibition Enforcement Act.—The Woman-Suffrage Amendment.—National Campaign Against Radicalism.—National Domain Bills.—Daylight Saving.—The Colombian Treaty. **POLITICS AND PARTIES.**—General Political Conditions.—The Elections.—A New Labor Party.—The Committee of Forty-eight.—The Prohibition Party.—Republican National Committee.

II. INTERNATIONAL RELATIONS 69

The Peace Conference.—Organization.—Publicity of Conference Transactions.—Rules Governing Conference Proceedings.—Major Problems of the Conference.—The League of Nations.—Origin.—The Covenant.—Russia.—The Proposed Prinkipo Conference.—Negotiations with Admiral Kolchak.—Poland.—Conditions of Recognition.—The Free City of Danzig.—Fiume.—President Wilson's Position.—D'Annunzio's Exploit.—Shantung.—Secret Treaties of Allies with Japan.—Significance of the Shantung Privileges.—Japan's Diplomatic Strategy.—Refusal of China to Sign the Treaty with Germany.—The Sarre Basin.—The Treaty with Germany.—Presentation of the Terms.—German Efforts to Negotiate.—The Final Treaty.—Modifications.—Germany's Acceptance.—Summary of the Treaty.—Ratification of the Treaty.—Austrian Independence and the German Constitution.—The Treaty with Austria.—Dismemberment of the Hapsburg Empire.—Territorial Changes.—Protection of Minorities.—Independence of Austria Inalienable.—Reparation.—Financial Clauses.—Commercial Clauses.—Military, Naval and Air Clauses.—Signature of the Treaty.—The Problem of Rumania.—The Treaty with Bulgaria.—Frontiers.—Political Clauses.—Reparation and Financial Clauses.—Military, Naval and Air Clauses.—The Solution of Thrace.—Signature of the Treaty.—The Treaty of Alliance with France.—The Anglo-Persian Treaty.—Mexican-American Relations.

III. FOREIGN HISTORY 123

LATIN AMERICA.—Argentina.—Bolivia.—Brazil.—Chile.—Colombia.—Costa Rica.—Cuba.—Dominican Republic.—Ecuador.—Guatemala.—Haiti.—Honduras.—Mexico.—Nicaragua.—Panama.—Paraguay.—Peru.—Salvador.—Uruguay.—Venezuela. **CANADA.**—Canada and the Peace

CONTENTS

	PAGE
Treaty.—Visit of the Prince of Wales.—Dominion Legislation.—Taxation.—National Acquisition and Development of Railways.—Soldiers' Pensions.—Industrial Unrest and Labor Troubles.—Agriculture.—Trade, Revenue, and Finance.—Political Situation. THE BRITISH EMPIRE.—The United Kingdom.—The Administration.—By-Elections.—Parliament.—Finance.—Legislation.—Labor.—Food and Prices.—Ireland.—The Overseas Dominions.—India.—Egypt.—South Africa.—Australia.—Newfoundland. CONTINENTAL EUROPE AND ASIA.—Austria.—France.—Germany.—Hungary.—Italy.—Russia.—Central States.—Balkan States.—Baltic States.—Other European Countries.—Asia.—Afghanistan.—China.—Japan. THE EUROPEAN WAR. STATISTICAL SUMMARY OF THE EUROPEAN WAR.	
IV. THE NATIONAL ADMINISTRATION	194
The President and Vice-President.—Executive Department.—Sixty-Fifth Congress.—Third Session.—Sixty-Sixth Congress.—Senate.—House of Representatives.—First Session.—Second Session.—Appropriations.—Federal Judiciary.—Diplomatic Service.—Consular Service. CIVIL SERVICE.	
V. STATE AND COUNTY GOVERNMENT	213
STATE AND COUNTY TABLES.—States of the Union, Area, Population, and Dates of Admission.—State Taxation, Indebtedness, Revenue, and Expenditures.—State Constitutions.—State and Territorial Governors.—State and Territorial Legislatures.—State Judiciary.—County Officers. STATE ADMINISTRATION.—Reconstruction Problems.—Constitutional Conventions.—The Governor.—The Short Ballot.—Consolidation of State Agencies.—Law Enforcement.—State Industrial Enterprises.—State Budgets. POPULAR GOVERNMENT AND CURRENT POLITICS.—Woman Suffrage.—Status of Popular Government.—Revision of State Constitutions. AMENDMENTS TO STATE CONSTITUTIONS. COUNTY GOVERNMENT.	
VI. MUNICIPAL GOVERNMENT	237
Charters.—Commission Government.—City-Manager Plan.—Home Rule.—Finance, Efficiency, and Research.—Surveys.—City Planning.—Excess Condemnation.—War Memorials.—Civic Centers.—Zoning.—Housing.—State Aid to House Builders.—The Federal Government and Housing.—Housing in Canada.—Housing in Great Britain.—Housing in France.—Fire Prevention.—Police.—Police Unionization.—Nuisances.—Smoke.—Billboards.—Municipal Organizations.—Municipal Elections.—Municipal Regulation of Aërial Traffic.—Financial Statistics of Cities.	
VII. TERRITORIES AND DEPENDENCIES	261
Alaska.—Guam.—Hawaii.—Philippine Islands.—Porto Rico.—Virgin Islands.	
VIII. LAW AND JURISPRUDENCE	270
Foreign Jurisprudence.—Privy Council Decisions.—Contracts.—Damages.—Professional Boycotts.—Wills.—Alien Enemies.—American Jurisprudence.—Uniform State Laws.—Declaratory Judgments.—Constitutional Law.—Public Office.—Public-Service Corporations.—Interstate Commerce.—Police Power.—State Income Taxes.—State Referendums on Federal Amendments.—Property and Contracts.—Brokers' Commissions.—Common Carriers.—Landlord and Tenant.—Stockholders.—Negotiable Paper.—Trade Fixtures.—Wills.—Torts.—Alienation of Affections.—Liability of Common Carrier.—Liability of Labor Unions.—Liability of Municipal Corporations.—Illegal Strikes and Boycotts.—Master and Servant.—Negligence.—Defamation.—Right of Privacy.—Unfair Competition.—Practice.—Bankruptcy.—Contempt of Court.—Disqualification of Jurors.—Expert Testimony.—Injunction.—Status.—Adoption.—Husband and Wife.—Marriage and Divorce.—Medical Practitioners.—Workmen's Compensation.—Criminal Law.—Federal Legislation.—State Legislation.—Anarchist Emblems.—Criminal Syndicalism.—Criminal Code Revisions.—Judicial Decisions.	
IX. PUBLIC RESOURCES AND PUBLIC WORKS	296
PUBLIC LANDS.—Homestead Legislation.—Status of Public Lands.—Disposition of Public and Indian Lands. MINERAL RESOURCES: U. S. GEOLOGICAL SURVEY. STATE GEOLOGICAL SURVEYS.—Activities and Resources.—Topographic Surveys.—Economic Geology.—Natural Materials for the Arts.—Coal and Peat.—Oil and Gas.—Manganese.—Iron, Copper, Lead, and Zinc.—Detailed Aërial Surveys.—Stratigraphic and Paleontologic Geology.—Surface and Underground Waters.—Soil, Forest, and Highway Investigations. RECLAMATION.—Reclamation Service.—Department of Agriculture.—Irrigation Legislation and Judicial Decisions.	

CONTENTS

	PAGE
—Irrigation Projects.—Drainage.—Soldiers' Land Settlement. HIGHWAYS.—State Road Funds.—Federal Aid.—Local Road Activities.—State Legislation.—Construction and Maintenance.—Road Expenditures and Mileages. WATERWAYS AND HARBORS.—Tendencies in Port Development.—Mechanical Handling of Freight.—Pier Design.—Army Supply Bases.—Free Ports.—Port Surveys.—Construction.	
X. PUBLIC SERVICES	315
Public-Service Commissions.—Municipal Ownership.—Water Supply.—Lighting.—Sewage and Refuge Disposal.	
XI. MILITARY AND NAVAL	320
THE ARMY.—Demobilization.—Civilian Personnel of the War Department.—Reserve Officers' Training Corps.—Employment of Discharged.—Disposal of Army Property.—General Staff.—Adjutant General.—Judge-Advocate-General.—Cost of the War.—War Casualties.—Return of our Dead.—Decorations.—American Expeditionary Force.—Future Military Policy.—National Guard.—American Legion. THE NAVY.—Troop Transportation.—Cargo Transportation.—Sweeping the Northern Mine Barrage.—New Fleet Organization.—Fleet Maneuvers.—New Construction.—World's Principal Navies.—Naval Aeronautics.—Demobilization of Personnel.—Recruiting.—Naval Education.—Radio and Naval Communications.—War Cost of the Navy.—Marine Corps.—Administration.	
XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS	341
Business Conditions in 1919.—Another Year of Extremes.—Agriculture.—Iron and Steel Trade.—Copper Trade.—Foreign Trade.—Building Operations.—Business Failures.—Railroad Earnings.—Bank Clearings.—Security Market.—New Securities Listed.—Incorporations.—Money Market.—Bank Loans and Deposits.—Prices and Cost of Living.—Index Numbers.—Conduct of Business.—Government Price Fixing and Control of Production and Distribution.—Promotion of Foreign Trade.—Cotton Futures Act.—Stock and Produce Exchanges.—Blue-Sky Legislation.—Anti-Trust and Other Decisions.	
XIII. PUBLIC FINANCE, BANKING, AND INSURANCE	364
PUBLIC FINANCE.—Federal Finance.—Receipts and Expenditures.—Public Debt.—War Expenditure.—Loans to Allies.—Victory Liberty Loan.—Treasury Certificates of Indebtedness.—Revenue Legislation.—Future Policy.—Budget Reform.—State and Local Finance.—Legislative Tendencies.—Budgets.—Corporation Taxes.—Bank Taxes.—Income Tax.—Inheritance Taxes.—Automobile Licenses.—Property Taxes.—Tax Administration. BANKING AND CURRENCY.—Currency.—National Banking System.—Federal Reserve System.—Acceptances.—Discount Rates.—Branch Banks.—Federal Reserve Banks.—Domestic Exchange and Collections.—Institutions Under State Charters.—Foreign Exchange and Gold Movements.—Postal Savings System.—Federal Farm Loan System.—Federal Legislation.—State Legislation. LIFE INSURANCE.—Influenza Epidemic.—New Business.—War Mortality.—Government Insurance.—Dividends.—American Mortality Tables.—Industrial Insurance.—Fraternal Insurance. PROPERTY AND CASUALTY INSURANCE.—Fire and Marine Insurance.—Fire Losses.—Riot and Civil Commotion Insurance.—Marine Insurance.—Casualty, Surety, and Miscellaneous Insurance.—Liability and Compensation Insurance.—Accident and Health Insurance.—Fidelity Insurance and Corporate Suretyship.—Miscellaneous Forms of Insurance.	
XIV. SOCIAL AND ECONOMIC PROBLEMS	401
ORGANIZED SOCIAL WORK.—Current Tendencies.—Standard of Living.—Case Work and the Status of the Family.—The State and Welfare Work.—The Local Community.—Financing of Social Agencies.—Rural Social Work.—Education for Social Work.—American Red Cross. RECREATION.—Community Service, Incorporated.—Municipal Recreation.—Community Music.—Community Drama.—Community Days.—Recreation Legislation.—Physical Education.—Community Buildings as War Memorials. CHILD WELFARE.—Conference on Standards.—Maternal and Infant Welfare.—Children's Code Commissions.—Dependent Children.—Juvenile Courts.—Defective Children. SOCIAL HYGIENE. MENTAL HYGIENE.—Lessons from War Experience.—Psychiatric Social Work.—Treatment of Mental Diseases.—Provisions for the Mentally Defective. CRIMINOLOGY AND PENOLOGY.—Probation and Parole.—Capital Punishment.—Lynchings.—Prison Labor.—New Institutions. SOCIAL WORK OF	

CONTENTS

	PAGE
THE CHURCHES. THE LIQUOR PROBLEM. SOCIALISM. IMMIGRATION.—Immigration during the War.—Immigration in 1919.—Emigration.—Legislation.—Deportation.—Americanization. UNEMPLOYMENT.—Employment Conditions.—U. S. Employment Service.—Placement of Soldiers and Sailors.—Public Work.	
XV. LABOR AND LABOR LEGISLATION	446
LABOR.—International Relations.—Labor in the Peace Treaty.—International Labor Conferences.—Labor Organizations.—Labor Cases.—Labor Education Movement.—Labor Party.—The "Plumb Plan."—Strike Record.—New York Harbor Strike.—Boston Police Strike.—Actors' Strike.—Steel Strike.—Coal Strike.—Mediation and Conciliation.—National Industrial Conference.—Court Decisions.—Collective Bargaining.—Protective Legislation.—Social Welfare.—Workmen's Compensation.—Health Insurance.—Old-Age Pensions.—Safety, Health and Comfort.—Hours of Labor.—Wages.—Cost of Living. LABOR LEGISLATION.—General Tendencies.—Minimum Wage.—Social Insurance.—Hours of Labor.—Employment.—Child Labor.—Safety and Health.—Administration of Labor Laws.—Trade Disputes.—Wage Payment and Liens.—Miscellaneous.	
XVI. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES	474
AGRICULTURE.—Crop Year.—U. S. Department of Agriculture.—Experiment Stations.—Extension Work.—Effects of the War.—Fertilizers.—Beet Sugar Industry.—Range Management.—Farm Lands.—Soldiers and Farming. DAIRYING. LIVE STOCK.—Veterinary Medicine.—Tuberculosis.—Cattle-Tick Eradication.—Dourine.—Hog Cholera.—Anthrax.—Equine Influenza.—Sheep and Cattle Scab.—Horse-Meat Inspection. DISEASES OF PLANTS.—Cereal Diseases.—Forest Tree Diseases.—Diseases of Fruits and Fruit Trees.—Control of Plant Diseases. ECONOMIC ENTOMOLOGY.—Pink Bollworm of Cotton.—Cotton Boll Weevil.—European Corn Borer.—Japanese Flower Beetle.—Sweet Potato Weevil.—Gypsy Moth.—Periodical Cicada.—Potato Aphid.—Insecticides. AGRICULTURAL LEGISLATION.—Soldier Settlement Acts.—Agricultural Credit and Insurance.—Marketing Farm Products.—Stimulating Animal Industry.—Combating Plant Diseases and Pests.—Inspection and Other Regulatory Laws.—Agricultural Education.—State Departments of Agriculture. HORTICULTURE. FORESTRY.—A National Policy.—Forest Fires.—Legislation.—National Forests.—War Achievements of American Forest Engineers. FISHERIES. STATISTICS OF AGRICULTURE.	
XVII. THE MINERAL INDUSTRIES	514
MINING AND ORE DRESSING.—Mining Industry.—Mining Methods.—Ore Dressing. COAL, COKE, AND PETROLEUM. COPPER.—Production.—Smelting.—Ore Treatment. GOLD AND SILVER.—Production.—Mining and Metallurgy. IRON AND STEEL.—Production.—Iron and Manganese Ore.—Ferroalloys.—Alloy Steels.—Tungsten Industry.—Steel Castings.—Steel Rails.—Defects in Gun Steel.—Chemistry in Steel Making.—Steel Testing.—Electrometallurgy. LEAD.—Production.—Ores.—Smelting.—Refining. ZINC.—Industrial Conditions.—Metallurgy. STATISTICS OF MINERAL PRODUCTION.	
XVIII. MANUFACTURES	536
General Conditions.—Industrial Failures.—Exports.—Imports of Materials for Manufacture.—Cotton.—Wool.—Leather.—Chemical Industries.—Shipbuilding.—Tariff Commission Studies.—Census of Manufactures. PATENTS AND INVENTION.	
XIX. TRADE, TRANSPORTATION, AND COMMUNICATION	546
Merchant Marine.—Vessels under Shipping Board Control.—Ship Subsidies and Mail Payments.—Foreign Trade.—Imports and Exports.—Balance of Trade.—Government Control of Exports and Imports.—Inland Waterways and Coastwise Commerce.—Government Control of Water Transportation.—Express Companies.—The Post Office.—Telegraphs and Telephones.—Street and Electric Railways.—Railroads.—Physical Condition and Services.—Revenues and Expenses.—Capital Expenditures and Advances.—Uniform Classification of Freight Rates.—Railroad Construction.—Railway Wages.—Railroad Administration.—Rulings of the Interstate Commerce Commission.—Leading Court Decisions.	
XX. ENGINEERING	565
CIVIL ENGINEERING.—Military Engineering.—Roads.—Buildings.—Concrete.—Bridges.—Dams.—Inland Waterways.—Railroads.—Rapid Trans-	

sit.—Harbors.—Municipal Engineering. ELECTRICAL ENGINEERING.—Central Stations and Power Apparatus.—Transportation.—Communication.—Illumination.—Research and Invention.—Applications of Electricity. MECHANICAL ENGINEERING.—Steam Engineering.—Internal Combustion Engineering.—Hydraulic Engineering.—Railroad Engineering.—Refrigeration.—Wind Motors.—Machine Tools.—Foundry Practice. AUTOMOBILES. AERONAUTICS.—Government Services.—Military Aeronautics.—Naval Aeronautics.—Airplane Design.—Airplane Engines.—Commercial Applications.—Records and Races.—Dirigible Balloons. NAVAL ARCHITECTURE AND MARINE ENGINEERING.—Expansion of Shipbuilding Facilities.—Tonnage Delivered.—Reduction of the Shipbuilding Programme.—Disposal of Government Vessels and Yards.—Quality of Government Ships. MATERIALS OF CONSTRUCTION.—Brick.—Cement.—Concrete.—Gypsum.—Non-Ferrous Metals and Alloys.—High-Speed Steel.—Magnetic Analysis of Steel.—Corrosion of Steel.—Standard Specifications.—Testing and Testing Apparatus.

XXI MATHEMATICS AND ASTRONOMY 607

MATHEMATICS. ASTRONOMY.—Military Research.—Observatories and Instruments.—Sun.—Eclipses.—Saturn's Rings.—Comets.—Eclipsing Binaries.—Orion Nebulosity.—Bright-Line Nebulae.—Structure of the Sidereal Universe.—Sources of Stellar Energy.

XXII. GEOLOGY, METEOROLOGY, AND GEOGRAPHY 615

DYNAMICAL AND STRUCTURAL GEOLOGY.—Isostasy.—Temperature of the Earth.—Glacial Deposits.—Coral Reefs.—Geology of the United States.—Geology of Alaska.—Geology of Canada.—Geology of South America. ECONOMIC GEOLOGY.—Petroleum Deposits.—Theory of Ore Deposits.—Copper Deposits.—Gold Deposits.—Iron Deposits. MINERALOGY AND PETROGRAPHY. EARTHQUAKES AND VOLCANOES. TERRESTRIAL MAGNETISM. METEOROLOGY AND CLIMATOLOGY.—General Meteorology.—Aeronautical Meteorology.—Agricultural Meteorology.—Rainfall.—Climatology. PHYSICAL GEOGRAPHY OF LAND AREAS.—Topography and Distribution of Vegetation.—Shorelines.—Coral Reefs.—Geography of France.—Aerial Exploration in Morocco. OCEANOGRAPHY. CARTOGRAPHY.—Peace Treaty Maps.—Military Surveys and Photo-Aerial Mapping. EXPLORATION AND GEOGRAPHICAL RESEARCH.—Polar Exploration.—Alaska.—Greenland.—Spitsbergen.—Russia.—Mount Everest.—Morocco under the French.

XXIII. CHEMISTRY AND PHYSICS 637

INORGANIC AND PHYSICAL CHEMISTRY.—Water.—Nitrogen.—Carbon.—Colloid Chemistry.—Radiochemistry.—Gallium and Germanium.—Fluorine. ORGANIC CHEMISTRY.—Hydrocarbons.—Halogenation.—Amines.—Carbohydrates.—Steroid and Cholesterol.—Coloring Matter of Flowers.—Ragweed Pollen.—Turmeric.—Arsenicals.—Acyl-amino-phenol Ethers.—Mustard Gas.—Analytical Methods. BIOLOGICAL AND FOOD CHEMISTRY.—Nutrition.—Pharmacology.—Food Supplies.—Food and Drug Control. SANITARY CHEMISTRY. AGRICULTURAL CHEMISTRY.—Soils.—Fertilizers.—Plant Chemistry.—Dairying. ELECTROCHEMISTRY.—Electrolytic Refining.—Electrolytic Chlorine.—Electroplating.—Electric Furnaces.—Storage Batteries. INDUSTRIAL CHEMISTRY AND CHEMICAL ENGINEERING.—Chemical Industry.—Gas Masks.—Sulphur.—Potash.—Synthetics and Dyes.—Motor Fuel. PHYSICS.—Sound.—Heat.—Optics and Radiation.—Electricity.—X-Rays.—Crystal Structure.—Radioactivity. NATIONAL RESEARCH COUNCIL.

XXIV. THE BIOLOGICAL SCIENCES 666

ORGANIC EVOLUTION.—Heredity and Variation.—Mating and Sex.—Method of Evolution. VERTEBRATE ZOOLOGY.—Gross Anatomy.—Histology.—Neurology.—Embryology.—Experimental Zoology. INVERTEBRATE ZOOLOGY.—Protozoa.—Coelenterata.—Platyhelminthes.—Nemathelminthes.—Rotifera.—Annelida.—Crustacea.—Mollusca.—Echinodermata. ENTOMOLOGY. VERTEBRATE PALEONTOLOGY.—Fishes.—Amphibia.—Birds.—Mammals.—Origin of the West Indies.—Atlantic Bridge between North America and Africa.—Palaeopathology. BOTANY.

XXV. THE MEDICAL SCIENCES 689

PHYSIOLOGY AND PHARMACOLOGY.—Shock.—Blood Coagulation.—Internal Secretions. PATHOLOGY AND BACTERIOLOGY.—Yellow Fever.—Influenza.—Pneumonia.—Encephalitis.—Streptococci.—Bacillus Egens.—Leucocytes.—Mustard-Gas Inhalation. MEDICINE.—Medical Science and the War.—Typhoid Fever.—Sprue.—Amoebic Dysentery.—Scurvy. SURGERY.—Surgery and the War.—Shock.—Surgery of the Chest.—Empyema.

PUBLIC HEALTH AND HYGIENE.—Infectious Diseases in the War.—Epidemic Influenza.—Venereal Diseases.—Pneumococcus Vaccine.—Physical Fitness and a Programme for Health.—Children's Year Campaign.—Occupational Diseases.—Health Organizations. VITAL STATISTICS.

XXVI. THE PHILOSOPHICAL AND SOCIAL SCIENCES 723

PHILOSOPHY.—General.—Metaphysics and Philosophy of Religion.—Ethics and Social Philosophy.—Logic. PSYCHOLOGY.—General.—Theoretical.—Experimental.—Abnormal.—Animal.—Applied.—Educational. ANTHROPOLOGY AND ETHNOLOGY.—Antiquity of Man.—Cave Art.—Canada.—California.—Southwest.—Ohio.—Southern States, Cuba and West Indies.—New York and New England. SOCIOLOGY AND STATISTICS.—Social Population.—Social Psychology.—Social Reconstruction.—Social Theory.—Social Institutions. ECONOMICS.

XXVII. RELIGION AND RELIGIOUS ORGANIZATIONS 739

CHRISTIAN CHURCHES.—Baptist.—Congregational.—Disciples of Christ.—Lutheran.—Methodist.—Presbyterian.—New Era Movement.—Protestant Episcopal.—Roman Catholic.—Knights of Columbus.—Cardinal Mercier.—Union and Cooperative Movements.—World Conference on Faith and Order.—Interchurch World Movement.—Young Men's Christian Association.—Young Women's Christian Association. JUDAISM.—Foreign Problems.—Aid for War Sufferers.—Jewish Organizations.—Zionism. RELIGIOUS BODIES IN THE UNITED STATES.

XXVIII. ART, ARCHITECTURE, MUSIC, AND DRAMA 753

PAINTING, SCULPTURE, AND HANDICRAFTS.—War's Aftermath.—Museums.—Exhibitions.—Sculpture.—Medallic Art.—Mural Paintings.—Handicrafts. ARCHITECTURE.—Architecture in War.—Social Value of Architecture.—Notable Buildings.—Rebuilding of Europe. LANDSCAPE ARCHITECTURE. CLASSICAL ARCHAEOLOGY. MUSIC.—Opera.—Music in Europe.—Community, Pageant, and Choral Music.—Symphonic and Chamber Music. THE DRAMA.—Actors' Strike.—Theatrical Year.—Notable Plays.

XXIX. LITERATURE AND LANGUAGE 773

AMERICAN LITERATURE.—Book Production.—Fiction.—Poetry.—Biography.—Essays. ENGLISH LANGUAGE AND LITERATURE. GERMANIC LANGUAGES AND LITERATURE.—German.—Scandinavian.—Dutch. ROMANCE LANGUAGES AND LITERATURE.—French.—Spanish.—Italian. GREEK LITERATURE. LATIN LITERATURE. SEMITIC LANGUAGE AND LITERATURE. INDO-EUROPEAN PHILOLOGY.

XXX. EDUCATION AND EDUCATIONAL INSTITUTIONS 796

Reconstruction in Education.—"R. O. T. C." succeeds "S. A. T. C."—"Back-to-School" and "Stay-in-School" Campaigns.—War Survivals.—Secondary Education.—Labor's Programme.—Legislation.—Americanization.—Training of Teachers.—Illiteracy.—Health and Physical Education.—Sex Education.—Vocational Education.—Rehabilitation of Soldiers and Sailors.—Education for Foreign Trade and Commerce.—Teachers' Problems.—Salaries.—Teachers' Unions.—International Relations in Education.—Rhodes Scholarships.—Fellowships in French Universities.—Exchange Professorships.—American University Union in Europe.—Institute of International Education.—A. E. F. University.—Education in the League of Nations.—Rural Life and Education.—Surveys.—A Kindergarten Revival.—Army Mental Tests. LIBRARIES.—War Service of the American Library Association.—Enlarged Programme.—Buildings.—Gifts.—Legislation.

XXXI. CHRONOLOGY AND NECROLOGY 819

American Chronology.—Foreign Chronology.—Chronology of the European War.—American Necrology.—Foreign Necrology.

SUPERVISORY BOARD AND CONSTITUENT SOCIETIES

THE AMERICAN YEAR BOOK was established in 1910 by conferences of members of national learned societies, acting officially or unofficially in behalf of their societies, and organized as a Supervisory Board. In 1911 the Supervisory Board was incorporated as the American Year Book Corporation, the officers of which are: President, Albert Bushnell Hart; Vice-President, Calvin W. Rice; Secretary and Treasurer, George W. Kirchwey; Directors, Albert Bushnell Hart, Hastings Hornell Hart, George W. Kirchwey, Alexander Lambert, Calvin W. Rice, John C. Rolfe. The following is a list of the members of the Board, representing the societies indicated, who have supervised the preparation of the material in this issue of the YEAR BOOK:

- Cyrus C. Adams, New York. AMERICAN GEOGRAPHICAL SOCIETY.
Herbert Adams, New York. AMERICAN FEDERATION OF ARTS.
Edwin W. Allen, Department of Agriculture, Washington. SOCIETY FOR THE PROMOTION OF AGRICULTURAL SCIENCE.
Elmer E. Brown, Chancellor, New York University. NATIONAL EDUCATION ASSOCIATION.
Francis Marion Burdick, Emeritus Professor of Law, Columbia University. AMERICAN BAR ASSOCIATION.
Edward Caldwell, New York. AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS.
Edwin G. Conklin, Professor of Zoölogy, Princeton University. AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.
Daniel H. Cox, Consulting Engineer, New York. Secretary, AMERICAN SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS.
William M. Davis, Professor of Geology, Harvard University. GEOLOGICAL SOCIETY OF AMERICA, ASSOCIATION OF AMERICAN GEOGRAPHERS, and NATIONAL ACADEMY OF SCIENCES.
James C. Egbert, Professor of Latin, Columbia University. ARCHEOLOGICAL INSTITUTE OF AMERICA.
Henry W. Farnam, Professor of Political Economy, Yale University. AMERICAN ASSOCIATION FOR LABOR LEGISLATION.
E. Porter Felt, New York State Entomologist. AMERICAN ASSOCIATION OF ECONOMIC ENTOMOLOGISTS.
Franklin H. Giddings, Professor of Sociology, Columbia University. AMERICAN SOCIOLOGICAL SOCIETY.
Caspar F. Goodrich, Rear-Admiral, U. S. N., retired. UNITED STATES NAVAL INSTITUTE.
William K. Gregory, American Museum of Natural History, New York. PALEONTOLOGICAL SOCIETY OF AMERICA.
Albert Bushnell Hart, Professor of Science of Government, Harvard University. AMERICAN HISTORICAL ASSOCIATION.

SUPERVISORY BOARD AND CONSTITUENT SOCIETIES

- Hastings Hornell Hart, Sage Foundation, New York. NATIONAL CONFERENCE OF SOCIAL WORK.
- A. V. Williams Jackson, Professor of Indo-Iranian Languages, Columbia University. Secretary, AMERICAN ORIENTAL SOCIETY.
- Emory R. Johnson, Professor of Commerce, University of Pennsylvania. AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE.
- George W. Kirchwey, late Professor of Law, Columbia University. AMERICAN INSTITUTE OF CRIMINAL LAW AND CRIMINOLOGY.
- C. Grant La Farge, New York. AMERICAN INSTITUTE OF ARCHITECTS.
- Alexander Lambert, Professor of Clinical Medicine, Cornell University. AMERICAN MEDICAL ASSOCIATION.
- Waldo Lincoln, Worcester, Mass. President, AMERICAN ANTIQUARIAN SOCIETY.
- George Grant MacCurdy. Assistant Professor of Prehistoric Archaeology, Yale University. AMERICAN ANTHROPOLOGICAL ASSOCIATION.
- Samuel J. Meltzer, Rockefeller Institute, New York. AMERICAN PHYSIOLOGICAL SOCIETY.
- George T. Moore, Professor of Applied Botany, Washington University. BOTANICAL SOCIETY OF AMERICA.
- Edward L. Nichols, Professor of Physics, Cornell University. AMERICAN PHYSICAL SOCIETY.
- Calvin W. Rice, Secretary. AMERICAN SOCIETY OF MECHANICAL ENGINEERS.
- John C. Rolfe, Professor of Latin Languages and Literature, University of Pennsylvania. AMERICAN PHILOLOGICAL ASSOCIATION.
- Henry N. Russell, Professor of Astronomy, Princeton University. AMERICAN ASTRONOMICAL SOCIETY.
- Edwin R. A. Seligman, Professor of Political Economy and Finance, Columbia University. AMERICAN ECONOMIC ASSOCIATION.
- Alexander Smith, Professor of Chemistry, Columbia University. AMERICAN CHEMICAL SOCIETY.
- Bradley Stoughton, Consulting Engineer, New York. AMERICAN INSTITUTE OF MINING ENGINEERS (Secretary) and AMERICAN SOCIETY FOR TESTING MATERIALS.
- Wendell M. Strong, New York. Secretary, ACTUARIAL SOCIETY OF AMERICA.
- Walter F. Willcox, Professor of Economics and Statistics, Cornell University. AMERICAN STATISTICAL ASSOCIATION.
- W. W. Willoughby, Professor of Political Science, Johns Hopkins University. AMERICAN POLITICAL SCIENCE ASSOCIATION.
- Edwin B. Wilson, Professor of Mathematics, Massachusetts Institute of Technology. AMERICAN MATHEMATICAL SOCIETY.
- George G. Wilson, Professor of International Law, Harvard University. AMERICAN SOCIETY OF INTERNATIONAL LAW.
- Clinton Rogers Woodruff, Honorary Secretary, NATIONAL MUNICIPAL LEAGUE.
- James I. Wyer, Jr., New York State Library, Albany. AMERICAN LIBRARY ASSOCIATION.

CONTRIBUTORS

- Cyrus C. Adams, A.B.:** EXPLORATION AND GEOGRAPHICAL RESEARCH.
Former Editor, *Bulletin of the American Geographical Society*.
- Edwin West Allen, Ph.D.:** AGRICULTURE.
Chief, Office of Experiment Stations, U. S. Department of Agriculture; Editor, *Experiment Station Record*; Secretary, Agricultural Section, American Association for the Advancement of Science.
- Carl Lucas Alsberg, A.M., M.D.:** BIOLOGICAL AND FOOD CHEMISTRY.
Chief, Bureau of Chemistry, U. S. Department of Agriculture.
- Andrew P. Anderson, B.S.:** HIGHWAYS.
Highway Engineer, Bureau of Public Roads, U. S. Department of Agriculture.
- Irene Osgood Andrews, A.B.:** LABOR LEGISLATION.
Assistant Secretary, American Association for Labor Legislation.
- John Bertram Andrews, A.M., Ph.D.:** LABOR; UNEMPLOYMENT.
Secretary, American Association for Labor Legislation; Editor, *American Labor Legislation Review*.
- Charles Edward Asnis, M.A., LL.B.:** INTERNATIONAL RELATIONS.
Member of the Pennsylvania Bar; Lecturer in Political Science, University of Pennsylvania.
- Wallace Walter Atwood, B.S., Ph.D.:** PHYSICAL GEOGRAPHY.
Professor of Physiology, Harvard University; Geologist, U. S. Geological Survey.
- Leonard S. Austin, Ph.B.:** COPPER.
Consulting Mining and Metallurgical Engineer.
- William Nickerson Bates, A.M., Ph.D.:** CLASSICAL ARCHÆOLOGY.
Professor of Greek, University of Pennsylvania.
- Albert Croll Baugh, Ph.D.:** ENGLISH LANGUAGE AND LITERATURE.
Instructor in English, University of Pennsylvania.
- Morris Bien, Ph.B., LL.M.:** PUBLIC LANDS.
Supervising Engineer, Counsel, and Assistant to the Director, U. S. Reclamation Service.
- Charles Franklin Brooks, Ph.D.:** METEOROLOGY AND CLIMATOLOGY.
Meteorologist, Editor, U. S. Weather Bureau.
- Harlow Brooks, M.D.:** MEDICINE.
Professor of Clinical Medicine, University and Bellevue Hospital Medical College
- Arthur Wesley Browne, M.S., Ph.D.:** INORGANIC AND PHYSICAL CHEMISTRY.
Professor of Inorganic and Analytical Chemistry, Cornell University; Chemical Expert in the Ordnance Department at Large, U. S. War Department.
- Francis Marion Burdick, LL.B., LL.D.:** LAW AND JURISPRUDENCE
Emeritus Professor of Law, Columbia University.
- Carl Hawes Butman:** THE ARMY.
Director, War Department News Bureau.

CONTRIBUTORS

- Allison Butts, A.B., S.B.:** ELECTROCHEMISTRY.
Instructor, Department of Metallurgy, Lehigh University; Assistant Editor, *The Mineral Industry*.
- Leon Cammen, M.A.:** MECHANICAL ENGINEERING.
Associate Editor, *Mechanical Engineering* (Journal of the American Society of Mechanical Engineers).
- Henry King Carroll, LL.D.:** CHRISTIAN CHURCHES.
Secretary of Ecumenical Methodist Commission; Statistician of Religious Bodies.
- Edward R. Cass:** CRIMINOLOGY AND PENOLOGY.
Acting General Secretary, Prison Association of New York.
- Walter Clarke, B.A.:** SOCIAL HYGIENE.
Assistant Secretary, American Social Hygiene Association.
- Abbie Condit, A.B.:** RECREATION.
Assistant, Playground and Recreation Association of America.
- Edwin Franklin Cone, A.B., B.S.:** IRON AND STEEL.
Associate Editor, *The Iron Age*.
- Harry Todd Costello, Ph.D.:** PHILOSOPHY.
Lecturer in Philosophy, Columbia University.
- Daniel H. Cox:** NAVAL ARCHITECTURE AND MARINE ENGINEERING.
Graduate, U. S. Naval Academy and Royal Naval College, Greenwich, England; Secretary, American Society of Naval Architects and Marine Engineers.
- William Thomas Cross, A.M.:** ORGANIZED SOCIAL WORK.
General Secretary, National Conference of Social Work.
- Louis Vincent De Foe, B.Litt.:** THE DRAMA.
Dramatic Critic, *New York World*.
- Raymond Smith Dugan, M.A., Ph.D.:** ASTRONOMY.
Assistant Professor of Astronomy, Princeton University.
- Benjamin Minge Duggar, A.M., Ph.D.:** BOTANY.
Professor of Plant Physiology, Washington University; Physiologist of the Missouri Botanical Garden; Acting Professor of Biochemistry in the Washington University Medical School.
- Walter H. Evans, A.M., Ph.D.:** DISEASES OF PLANTS.
Botanical Editor, *Experiment Station Record*, Chief of Insular Stations, Office of Experiment Stations, U. S. Department of Agriculture.
- Charles De Van Fawcett, E.E.:** ELECTRICAL ENGINEERING.
Assistant Professor of Electrical Engineering, University of Pennsylvania.
- Ephraim Porter Felt, D.Sc.:** ENTOMOLOGY.
State Entomologist of New York.
- Harry L. Fisher, Ph.D.:** ORGANIC CHEMISTRY.
Research Chemist, B. F. Goodrich Co., Akron, Ohio.
- Frederick Raymond Georgia, B.Chem.:** SANITARY CHEMISTRY.
Instructor in Sanitary Chemistry, Cornell University.
- Adelno Gibson.** THE EUROPEAN WAR; STATISTICAL SUMMARY OF THE EUROPEAN WAR.
Colonel, General Staff, U. S. A.; Acting Chief, Statistics Branch, Office of the Chief of Staff.
- Edwin J. Glasson, B.S.A.:** HORTICULTURE; FORESTRY.
Horticulture and Forestry Editor, *Experiment Station Record*, U. S. Department of Agriculture.

CONTRIBUTORS

- Ernest Henry Godfrey, F.S.S.:** CANADA.
Editor, Dominion Bureau of Statistics, Ottawa, Canada.
- William King Gregory, Ph.D.:** VERTEBRATE PALÆONTOLOGY.
Assistant Professor of Vertebrate Palæontology, Columbia University; Research Associate, American Museum of Natural History.
- Edward Everett Hale, A.B., Ph.D.:** AMERICAN LITERATURE.
Professor of English, Union College.
- Robert Dawson Hall:** COAL, COKE, AND PETROLEUM.
Managing Editor, *Coal Age*.
- George Livingstone Hamilton, Ph.D.:** ROMANCE LANGUAGES AND LITERATURES.
Professor of Romance Languages and Literatures, Cornell University.
- Fred Geer Harden, M.A.:** RECLAMATION.
Scientific Assistant, States Relations Service, U. S. Department of Agriculture.
- Richard Compton Harrison, A.M., LL.B.:** PUBLIC SERVICES.
Formerly Assistant Counsel, Public Service Commission, First District of New York; Secretary, City Club of New York.
- Daniel Lyman Hazard, A.B.:** TERRESTRIAL MAGNETISM
Assistant Chief, Division of Terrestrial Magnetism, U. S. Coast and Geodetic Survey.
- Robert W. Hegner, A.B.:** INVERTEBRATE ZOÖLOGY.
Associate in Protozoölogy, School of Hygiene and Public Health, Johns Hopkins University.
- William Arthur Heidel, Ph.D.:** GREEK LITERATURE.
Professor of Greek, Wesleyan University.
- Roscoe B. Hill, A.B.:** LATIN AMERICA.
Professor of History, University of New Mexico.
- Heinrich O. Hofman, E.M., Met. E., Ph.D.:** LEAD.
Professor of Metallurgy, Massachusetts Institute of Technology.
- Arthur Norman Holcombe, Ph.D.:** POPULAR GOVERNMENT
Assistant Professor of Government, Harvard University.
- William A. Hooker, B.S., D.V.M.:** ECONOMIC ENTOMOLOGY; VETERINARY MEDICINE.
Editor for Economic Entomology and Veterinary Medicine, *Experiment Station Record*, U. S. Department of Agriculture.
- Solomon S. Huebner, Ph.D.:** ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS; PROPERTY AND CASUALTY INSURANCE.
Professor of Insurance and Commerce, University of Pennsylvania.
- Walter Renton Ingalls, S.B.:** ZINC.
Consulting Mining and Metallurgical Engineer, New York.
- Abram S. Isaacs, A.M., Ph.D.:** JUDAISM.
Professor of Semitic Languages, New York University.
- Morris Jastrow, Jr., Ph.D.:** SEMITIC PHILOLOGY AND LITERATURE.
Professor of Semitic Languages, University of Pennsylvania.
- John Wilber Jenkins:** THE NAVY.
Special Assistant to the Secretary of the Navy, attached to Historical Section, Navy Department.
- Herbert Spencer Jennings, Ph.D., S.D., LL.D.:** ORGANIC EVOLUTION.
Professor of Zoölogy, Johns Hopkins University.
- W. L. G. Joerg:** CARTOGRAPHY.
Associate Editor, *Geographical Review* (American Geographical Society), New York.

CONTRIBUTORS

- Willis Fletcher Johnson, A.M., L.H.D.:** CONTINENTAL EUROPE AND ASIA.
Honorary Professor of History of American Foreign Relations, New York University; Literary Editor, *New York Tribune*.
- Harvey Ernest Jordan, M.A., Ph.D.:** VERTEBRATE ZOÖLOGY.
Professor of Histology and Embryology, University of Virginia.
- Roland G. Kent, A.M., Ph.D.:** INDO-EUROPEAN PHILOLOGY.
Professor of Comparative Philology, University of Pennsylvania.
- Alexander Klemin, A.C.G.L., B.Sc., S.M.:** AERONAUTICS.
Consulting Aeronautical Engineer; Technical Editor, *Aviation and Aeronautical Engineering*.
- Charles Knapp, A.M., Ph.D.:** LATIN LITERATURE.
Professor of Greek and Latin, Barnard College, Columbia University; Managing Editor, *The Classical Weekly*.
- Howard L. Knight, B.S.:** AGRICULTURAL LEGISLATION.
Associate Editor, *Experiment Station Record*, U. S. Department of Agriculture.
- Adolph Knopf, M.S., Ph.D.:** ECONOMIC GEOLOGY.
Geologist, U. S. Geological Survey.
- John Koren, A.B., F.S.S., F.A.S.A.:** THE LIQUOR PROBLEM.
Statistician and Author.
- Story Butler Ladd, M.E.:** MANUFACTURES.
Expert Special Agent, U. S. Bureau of the Census.
- Herbert Sidney Langfeld, Ph.D.:** PSYCHOLOGY.
Assistant Professor of Psychology and Director of the Psychological Laboratory, Harvard University.
- Charles W. Larson, Ph.D.:** DAIRYING.
Dairy Division, Bureau of Animal Industry, U. S. Department of Agriculture.
- George Washington Littlehales, C.E.:** OCEANOGRAPHY.
Hydrographic Engineer, U. S. Hydrographic Office.
- Charles E. Locke, S.B.:** MINING AND ORE DRESSING.
Associate Professor of Mining Engineering and Ore Dressing, Massachusetts Institute of Technology.
- Oliver Cary Lockhart, A.M., Ph.D.:** PUBLIC FINANCE
Legislative Division, National Bank of Commerce, New York.
- William Bernard McCormick:** PAINTING, SCULPTURE, AND HANDICRAFTS.
Art Critic.
- George Grant MacCurdy, Ph.D.:** ANTHROPOLOGY AND ETHNOLOGY.
Assistant Professor of Prehistoric Archeology, Yale University.
- Roy Samuel MacElwee, Ph.D.:** WATERWAYS AND HARBORS.
Assistant Director, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce.
- Frank McIntyre:** TERRITORIES AND DEPENDENCIES.
Major-General, U. S. Army; Chief, Bureau of Insular Affairs, U. S. War Department.
- Edward Lawrence McKenna, A.M.:** TRADE, TRANSPORTATION, AND COMMUNICATION.
Instructor in Insurance and Commerce, University of Pennsylvania.
- Frederick H. Martens:** MUSIC.
Music journalist and critic; on staff of the *Musical Observer*; New York correspondent of the *London Musical Record*.
- John Mabry Mathews, A.B., Ph.D.:** STATE AND COUNTY GOVERNMENT.
Assistant Professor of Political Science, University of Illinois.

CONTRIBUTORS

- Samuel James Meltzer, M.D., LL.D.:** PHYSIOLOGY AND PHARMACOLOGY.
Head of the Department of Physiology and Pharmacology, Rockefeller Institute for Medical Research.
- Charles Elwood Mendenhall, B.S., Ph.D.:** NATIONAL RESEARCH COUNCIL.
Professor of Physics, University of Wisconsin; Chairman, Division of Physics, National Research Council.
- George Abram Miller, A.M., Ph.D.:** MATHEMATICS.
Professor of Mathematics, University of Illinois.
- Wesley Clair Mitchell, A.B., Ph.D.:** ECONOMICS.
New School for Social Research, New York.
- Annie G. Porritt:** THE BRITISH EMPIRE.
Journalist and Author.
- Harry Fielding Reid, C.E., Ph.D.:** EARTHQUAKES AND VOLCANOES.
Professor of Dynamical Geology and Geography, Johns Hopkins University; Special Expert in Charge of Earthquake Records. U. S. Geological Survey.
- Calvin Winsor Rice, S.B.:** MECHANICAL ENGINEERING
Secretary, American Society of Mechanical Engineers.
- Walter F. Rogers, LL.M.:** PATENTS AND INVENTION.
Member of New York and Washington Bars.
- George McCullough Rommel, B.S., B.S.A.:** LIVE STOCK.
Chief, Animal Husbandry Division, Bureau of Animal Industry, U. S. Department of Agriculture.
- William Horace Ross, M.Sc., Ph.D.:** AGRICULTURAL CHEMISTRY.
Specialist in Soil Investigations, Bureau of Soils, U. S. Department of Agriculture.
- Will Carson Ryan, Jr., A.B., Ph.D.:** EDUCATION AND EDUCATIONAL INSTITUTIONS.
Specialist in Industrial Education and Vocational Guidance, U. S. Bureau of Education.
- Thomas William Salmon, M.D.:** MENTAL HYGIENE
Medical Director, National Committee for Mental Hygiene.
- J. Edward Schipper:** AUTOMOBILES.
Technical Editor, *Automotive Industries*, *Motor Age*, and *Motor World*.
- M. G. Seelig, A.B., M.D.:** SURGERY.
Professor of Clinical Surgery, Washington University.
- Herbert Newhard Shenton, A.M., B.D.:** SOCIOLOGY.
Instructor in Sociology, Columbia University; Assistant Secretary, Council of National Defense.
- Daniel Bussier Shumway, B.S., Ph.D.:** GERMANIC LANGUAGES AND LITERATURES.
Professor of Germanic Philology, University of Pennsylvania.
- George Otis Smith, Ph.D.:** UNITED STATES GEOLOGICAL SURVEY.
Director, U. S. Geological Survey.
- Hugh McCormick Smith, M.D., LL.D.:** FISHERIES.
Commissioner, U. S. Bureau of Fisheries.
- Wendell M. Strong, M.A., Ph.D., LL.B.:** LIFE INSURANCE.
Associate Actuary, Mutual Life Insurance Company, New York; Secretary, Actuarial Society of America.
- Aubrey Tealdi:** LANDSCAPE ARCHITECTURE.
Professor of Landscape Design, University of Michigan.
- Carl Dean Thompson, M.A.:** SOCIALISM.
Secretary, Public Ownership League of America.

CONTRIBUTORS

- Laura A. Thompson, A.B.:** CHILD WELFARE.
Librarian, U. S. Department of Labor.
- Clair Elsmere Turner, M.A., C.P.H.:** PUBLIC HEALTH AND HYGIENE.
Associate Professor of Biology and Public Health, Massachusetts Institute of Technology; Assistant Professor of Hygiene, Tufts College.
- Frank Julian Warne, M.A., Ph.D.:** IMMIGRATION.
Professional Expert on Railway Economics; Special Expert on Foreign-Born Population, Thirteenth Census.
- Charles Laurence Warwick, B.S.:** MATERIALS OF CONSTRUCTION.
Secretary-Treasurer, American Society for Testing Materials.
- Thomas Leonard Watson, M.S., Ph.D.:** STATE GEOLOGICAL SURVEYS.
Professor of Geology, University of Virginia; State Geologist of Virginia; Secretary, Association of American State Geologists.
- Ray Bert Westerfield, Ph.D.:** BANKING AND CURRENCY.
Assistant Professor of Political Economy, Yale University.
- Charles Harris Whitaker:** ARCHITECTURE.
Editor, *Journal of the American Institute of Architects*.
- Herbert Percy Whitlock, C.E.:** MINERALOGY AND PETROGRAPHY.
Curator of Mineralogy, American Museum of Natural History.
- Francis Graham Wickware, B.A., B.Sc.:** NATIONAL ADMINISTRATION, CHRONOLOGY AND NECROLOGY; VITAL STATISTICS; MISCELLANEOUS.
Managing Editor, THE AMERICAN YEAR BOOK.
- Frank Clinton Wight, C.E.:** CIVIL ENGINEERING.
Managing Editor, *Engineering News-Record*.
- William Franklin Willoughby, A.B.:** AMERICAN HISTORY.
Director, Institute for Government Research.
- James Renwick Withrow, B.S., Ph.D.:** INDUSTRIAL CHEMISTRY AND CHEMICAL ENGINEERING.
Professor of Industrial Chemistry, Ohio State University.
- Martha Wollstein, M.D.:** PATHOLOGY AND BACTERIOLOGY.
Associate of the Rockefeller Institute for Medical Research; Pathologist to the Babies' Hospital, New York.
- James Albert Woodburn, A.M., Ph.D., LL.D.:** POLITICS AND PARTIES.
Professor of American History, Indiana University.
- Clinton Rogers Woodruff, Ph.B., LL.B.:** CIVIL SERVICE; COUNTY GOVERNMENT; MUNICIPAL GOVERNMENT; SOCIAL WORK OF THE CHURCHES.
Honorary Secretary, National Municipal League; Editor, *National Municipal Review*.
- Jay Backus Woodworth, B.S.:** DYNAMICAL AND STRUCTURAL GEOLOGY.
Associate Professor of Geology, Harvard University.
- James Ingersoll Wyer, Jr., M.L.S., Pd.D.:** LIBRARIES.
Director, New York State Library.
- George Joseph Young, B.S.:** GOLD AND SILVER.
Western Editor, *Engineering and Mining Journal*.

THE AMERICAN YEAR BOOK

A RECORD OF EVENTS AND PROGRESS

I. AMERICAN HISTORY

WILLIAM F. WILLOUGHBY

ORGANIZATION AND WORK OF CONGRESS

The Sixty-fifth Congress, Third Session.—The Sixty-fifth Congress assembled in its third and final session on Dec. 2, 1918 (*A. Y. B.*, 1918, p. 21), and terminated on March 4, 1919. In length of sessions this Congress was exceeded by but one other Congress, the Sixty-third, which sat for 20 more days. Of the 730 days of its life, the Sixty-fifth Congress was in session 622 days, or 85 per cent. of the time. It had before it a total of 22,594 bills and resolutions; of the 453 of these enacted, 405 were public laws and resolutions, and 48 were private acts.

Notwithstanding the comparatively few days at its disposal, the Congress in its third session enacted a considerable body of important general legislation (see IV, *The National Government*). Among the more important measures that became law during this session were the Revenue Act of Feb. 24, 1919; the War-Risk Insurance Amendment Act of Feb. 25, 1919; the Relief of European Populations Act of Feb. 25, 1919; the Vocational Rehabilitation Act of Feb. 26, 1919; the Army Voluntary Enlistment Act of Feb. 28, 1919; the War Contracts Relief Act of March 2, 1919; the Rivers and Harbors Appropriation Act of March 2, 1919; the Fourteenth Census Act of March 3, 1919; the Victory Liberty Loan Act of March 3, 1919; the Federal Reserve Amendment Act of March 3, 1919; and the Wheat Stabilization Act of March 4, 1919. The

provisions of most of these are summarized subsequently in this article.

On the other hand, the session and the Congress came to an end without the enactment of seven of the general appropriation acts required for the support of the Government—the Agricultural, carrying \$37,000,000; the Army, \$1,240,000,000; the Naval, \$820,000,000; the Indian \$11,000,000; the District of Columbia, \$11,500,000; the Sundry Civil, \$851,000,000; and the Third General Deficiency, \$776,000,000. All of these bills had been passed by the House and were held up either in the Senate or in conference.

Their failure was due to a filibuster which developed in the Senate to force President Wilson to summon the new Congress in special session. There was a strong feeling in the country that in view of the gravity of the issues presented in the negotiation of the Treaty of Peace that was to bring the Great War to an end, the urgency of action towards the restoration of the industrial and commercial interests of the country to a peace basis, and the necessity of early steps towards settling many other questions growing out of the war, the President should at once, on the termination of the Sixty-fifth Congress, convene the new Congress chosen at the November, 1918, election. This feeling was naturally especially strong within the Republican Party, which urged that inasmuch as the country, notwithstanding

I. AMERICAN HISTORY

the urgent appeal that the President had made it to return a Congress of his political persuasion (*A. Y. B.*, 1918, p. 32), had elected a Congress having a Republican majority in both houses, it was entitled to be represented during this critical period by that body. The President, however, let it be known that it was not his intention to summon the Sixty-sixth Congress so long as that step could be avoided. His decision only served to accentuate a feeling already existing in both political parties, both inside and outside of Congress, that the President desired as far as possible to play a lone hand in directing the affairs of the Nation, and proposed to give to the Congress the minimum of participation in determining the policy of the country with respect both to the terms under which peace should be made with the Central Powers and to the measures that should be taken to restore peace conditions in the United States. The failure of the President to consult with or to give any representation to the Senate in the constitution of the American delegation to the Peace Conference, or indeed, it was said, to select anyone who was likely to assert vigorously his opinion against that of the President, was deemed as but additional evidence of Mr. Wilson's desire to follow the dictates of his own unhampered judgment.

This was the situation when three Republican Senators, Sherman of Illinois, La Follette of Wisconsin, and France of Maryland, breaking away from the restraint of the Republican leaders in the Senate, inaugurated a filibuster lasting over 26 hours on the last two days of the session. The consequent failure of the seven appropriation bills noted above made it obligatory upon the President to summon Congress in special session prior to the end of the fiscal year on June 30.

The President's rejoinder was the following public statement:

A group of men in the Senate have deliberately chosen to embarrass the administration of the Government, to imperil the financial interests of the railway systems of the country, and to make arbitrary use of powers intended to be employed in the interest of the people.

It is plainly my present duty to attend the Peace Conference in Paris. It is also my duty to be in close contact with the public business during a session of the

Congress. I must make my choice between these two duties, and I confidently hope that the people of the country will think that I am making the right choice.

It is not in the interest of the right conduct of public affairs that I should call the Congress in special session while it is impossible for me to be in Washington, because of a more pressing duty elsewhere, to cooperate with the Houses.

I take it for granted that the men who have obstructed and have prevented the passage of necessary legislation have taken all of this into consideration and are willing to assume the responsibility of the impaired efficiency of the Government and the embarrassed finances of the country during the time of my enforced absence.

The Senate, on Jan. 16, by a vote of 50 to 21, adopted a resolution reported by a majority of the Committee on Privileges and Elections dismissing the charges of disloyalty which had been brought against Senator Robert M. La Follette of Wisconsin by the Minnesota Public Safety Commission on account of certain alleged utterances in a speech delivered before a convention of the National Non-Partisan League of St. Paul, on Sept. 20, 1917 (*A. Y. B.*, 1917, p. 31.)

The Sixty-sixth Congress Convened.—The Congress elected in November, 1918, which normally would not have met until December, 1919, was perforce convened by the President to meet in special session on May 19. As the session was the first of a new Congress, the first step that had to be taken by both houses was that of organization, that is, of adopting rules of procedure, selecting presiding officers and other officials, determining the membership of committees, and determining as far as feasible the programme of action for the session. This work was of especial importance because of the fact that control in both houses had passed from the Democratic to the Republican Party.

Organization of the House.—These matters received attention prior to the convening of Congress. On May 17 the Republican members of the House met in caucus and adopted a resolution providing that the following matters should constitute the legislative programme of the party:

Return of the telephone, telegraph, and cable lines to their owners.

Adoption of woman-suffrage amendment.

Railroad legislation and development of transportation facilities.

Military policy and measures necessary

for the earliest possible return of our soldiers from overseas.

Comprehensive American merchant-marine programme.

Public oil-and coal-lands legislation.

Water-power legislation.

Budget legislation.

Tariff legislation designed to increase the revenues from imports and to afford adequate protection to American labor and industries.

Reduction in domestic taxation, simplification of the laws relative thereto, and the immediate repeal of the luxury taxes.

Measures to conserve the welfare of our returning soldiers.

Investigation of administrative activities and expenditures since the beginning of the war.

Revision of the immigration laws and enactment of legislation providing for deportation of undesirable aliens.

The leading candidates for Speaker were James R. Mann of Illinois, Frederick H. Gillett of Massachusetts, and S. D. Fess of Ohio. Following precedence Mr. Mann would have been selected. A bitter attack was made upon his selection, however, on the ground that he was not temperamentally qualified for the position, that he represented the old machine and was not sufficiently in sympathy with the more progressive element of the Party. Mr. Gillett's claim rested in part upon the fact that he had been acting floor leader during the absence of Mr. Mann on account of illness, and Mr. Fess' claim upon his being chairman of the Republican Congressional Committee. Upon the withdrawal of Mr. Fess the selection of Mr. Gillett was assured and he was later elected Speaker of the Sixty-sixth Congress. Champ Clark of Missouri, the ex-Speaker, received the Democratic vote and became the leader of his party on the floor.

Another phase of the organization fight involved the attempt of certain Republican members, among whom was Nicholas Longworth of Ohio, to enlarge the party steering committee from five to nine members and to do away with the seniority rule in the selection of chairmen for important committees. These efforts were in large measure an insurgent movement to wrest control from the "Old Guard." The usual indictment of the machine as represented by James R. Mann was indulged in. The insurgent element may be said to have gained a victory in defeating Mr. Mann for the Speakership. His faction, however, was

completely successful with regard to other features of the organization of the House, and this element dominated in determining committee assignments. Frank W. Mondell of Wyoming, a candidate of the "Old Guard," was made floor leader of the Republicans after Mr. Mann had declined to serve.

Organization of the Senate.—In the organization of the Senate a strong fight was made to depose Boies Penrose of Pennsylvania and F. E. Warren of Wyoming from leadership and to abolish the rule of seniority in the assignment of committee chairmanships. A partial success was achieved in securing a modification of the existing caucus rule so as to prohibit any one Senator from being on more than two of the 10 principal standing committees, and in securing the election of Albert B. Cummins of Iowa as President *pro tempore*. Senator Pittman of Nevada was the Democratic candidate. The fight on Penrose and Warren was led by Senators Borah and Kenyon, prominent Progressives, but Penrose and Warren controlled the situation, and all important committee assignments were made in accordance with their wishes. Senator Lodge of Massachusetts became chairman of the Committee on Foreign Relations and later leader of his party on the floor. Senator Martin of Virginia was the unanimous choice of the Democrats for party floor leader, but owing to illness which finally led to his death, and the fact that the Treaty of Peace constituted the most important business coming before the Senate, Mr. Hitchcock of Nebraska, who had charge of the Treaty on behalf of the President, was for the most part the Democratic floor leader.

The Sixty-sixth Congress, First Session.—As President Wilson was absent in France when the Sixty-sixth Congress convened in its first session on May 19, his message to Congress, presented on the following day, was read to the two houses instead of being delivered in person, as had been his unbroken custom. The President stated that he had summoned Congress in special session in order that the supply bills necessary for the support of the Government might be passed, but he took advantage of the

I. AMERICAN HISTORY

occasion to suggest to Congress important matters of general legislation requiring its attention. The feature of the message was the recommendation that action be taken looking towards the democratization of industry and the meeting of the needs of labor for better conditions, which is commented upon subsequently in this article. Other recommendations were for:

Adoption of measures for securing employment for returned soldiers and sailors.

Promotion of the American merchant marine and foreign trade.

Revision of the system of Federal taxation.

Continuance of the U. S. Employment Service.

Adoption of Secretary Lane's programme for the reclamation of waste lands (A. Y. B., 1918, p. 316).

Maintenance of the tariff system as under the Tariff Act of 1913, with the exception of steps for the protection of certain industries which had developed under Government encouragement during the war, such as the dye and chemical industries.

Submission to the people of a constitutional amendment providing for woman suffrage.

Return of the railroads to private ownership at the end of the calendar year, and the telegraph and telephone systems as soon as practicable.

Repeal of the war-time ban upon intoxicating liquors in so far as beer and light wines were concerned.

This session of Congress continued until Nov. 19. The principal legislative achievements of the session, in addition to the passage of the appropriation acts which had come over to it from the preceding Congress, were (see also IV, *The National Government*) the adoption of a resolution providing for the submission to the states of an amendment to the Constitution granting the suffrage to women; the enforcement of both war-time and constitutional prohibition; the repeal of the Daylight Saving Act; the return of the cables, telegraphs, and telephones to private ownership; the extension of the Lever Food and Fuel Control Act to include clothing and other necessities and to penalize hoarding and profiteering; the extension of Government control of dyes to Jan. 15, 1920; the completion of the Government railroad in Alaska; and the continuance of the war-time restrictions upon passports so as to prevent an influx of radical aliens.

Substantial progress was made on

other important legislation. The Esch Railroad bill passed the House, and the Senate took up consideration of the Cummins bill dealing with the same subject. The House passed and sent to the Senate bills providing for the development of water-power resources on the public domain and the establishment of a Federal budget system. Both houses passed and sent to conference bills providing for the leasing of oil, coal, gas, and phosphate lands and the Edge bill authorizing the organization of corporations to assist in the financing of American export trade. Other matters receiving a large amount of attention, and in respect to which important hearings were held, were the reorganization of the military establishment and the determination of a permanent policy for the development of an American merchant marine. There were also numerous special investigations, including inquiries regarding the conduct of the affairs of the War Department during the war, the steel strike, the coal strike, radical propaganda in the United States, etc.

In the Senate a large part of the time on the floor was taken up in the consideration of the draft of the Peace Treaty with Germany and the League of Nations Covenant contained in it (see *infra*). Drafts of other treaties of peace and for the military assistance of France in case she should be attacked by Germany (see II, *International Relations*) were also laid before the Senate but received little attention. It was felt that it was not desirable to act upon them until the major issues involved in the Treaty with Germany had been settled.

On Jan. 8 Victor L. Berger, Representative elect from Wisconsin, was convicted with four other national leaders of the Socialist Party of sedition and disloyalty under the Espionage Act, and on Feb. 20 he was sentenced to imprisonment for 20 years (see also XIV, *Socialism*). The House on its organization refused to permit him to take his seat, although he was then at liberty on bail pending an appeal to the U. S. Supreme Court. On Nov. 12 the House by a vote of 309 to one permanently unseated him, Representative Voigt of Wisconsin casting the only vote in his favor. At a

new election to fill the vacancy, Berger again offered himself as a candidate and was reelected by a majority of something over 4,000 votes. Representative John F. Fitzgerald, Democrat, of Massachusetts, was also unseated on account of fraud in connection with his election, and his opponent, Peter Tague, was seated.

The Sixty-sixth Congress, Second Session.—On Dec. 1 the Sixty-sixth Congress assembled in its second (first regular) session. On the following day President Wilson, who by reason of illness was unable to be present in person, transmitted to it his annual message. It had been expected that this message would deal largely, if not exclusively, with the subject of the Treaty of Peace and the League of Nations. To the surprise of all, it made no mention of this subject but was devoted almost wholly to matters of internal administration. With regard to the railroads it stated merely that this matter would be made the subject of a special message. Among the questions discussed in the message, prominence was given to the desirability of a national budget system and of the urgency of the greatest possible economy in the conduct of public affairs. Other recommendations included immediate consideration of the problem of future taxation, especially the simplification of the income and profits taxes; protection of the dyestuffs and related chemical industries, as a matter both of military preparedness and of justice to these industries, the establishment of which had been urged and promoted by the Government; continued promotion of the building of good roads; provision for the improvement of living conditions in rural communities; enactment of legislation to strengthen the hands of the Government in combating radicalism seeking to subvert American principles of government; regulation of the cold-storage industry; and establishment of a Federal license system for "all corporations engaged in interstate commerce and embodying in the license or in the conditions under which it is to be issued specific regulations designed to secure competitive selling and prevent unconscionable profits in the method of marketing."

The last half of the message was de-

voted to the subject of industrial unrest. It again expressed the conviction of the President that

there can be no permanent and lasting settlements between capital and labor which do not recognize the fundamental concepts for which labor has been struggling through the years. . . . Governments must recognize the right of men collectively to bargain for humane objects that have at their base the mutual protection and welfare of those engaged in all industries. Labor must not be longer treated as a commodity. It must be regarded as the activity of human beings possessed of deep yearnings and desires. . . . No less regard ought to be paid to the human machine which after all propels the machinery of the world and is the great dynamic force that lies back of all industry and progress. Return to the old standards of wage and industry in employment are unthinkable. . . . The right of individuals to strike is inviolate and ought not to be interfered with by any process of government, but there is a predominant right and that is the right of Government to protect all of its people and to assert its power and majesty against a challenge of any class.

Congress at the opening of the new session set itself promptly to the consideration of measures pending before it. The Senate passed the Cummins Railroad bill, with the result that when the session was adjourned for the Christmas holidays, each of the houses had passed a Railroad bill which had been sent to conference for adjustment of the differences between the two. Other pending matters were likewise advanced, all of which will be considered subsequently.

On March 29 it was announced that a Federal grand jury at Grand Rapids, Mich., had indicted Truman H. Newberry and 133 other persons for corruption, fraud, and conspiracy in connection with the election of Senator Newberry to his seat in the Senate. The claim was made that between \$500,000 and \$1,000,000 had been expended in promoting the election of Senator Newberry over his opponent, Henry Ford. Immediate investigation of this election was entered upon by the Elections Committee of the Senate, but no report was made by it to the end of the year.

The President and Congress.—An outstanding feature of the national administration during the year was the increasing estrangement of the President and Congress. Throughout his administration President Wilson had

shown himself unusually intolerant of criticism or attempted exercise of power on the part of Congress in determining or controlling the administration of public affairs. During the war this found expression in his determined, and on the whole successful, resistance of proposals by Congress for the creation of a War Cabinet or a Ministry of Munitions or other action designed to specify how the large powers granted to the President should be exercised. Furthermore, all moves on the part of Congress to inquire into the conduct of affairs during the progress of the war were denounced by him as equivalent to a declaration of lack of confidence and calculated to embarrass him in the prosecution of the war. So long as the country was engaged in actual hostilities, Congress thought it necessary to bow to the popular feeling that during a war every possible support should be given to the Chief Executive. Moreover, during this period President Wilson had a Congress both houses of which were in the control of his party. But a week before the signing of the armistice on Nov. 11, 1918, a new Congress was elected, both houses of which were controlled by the party politically opposed to him. Conditions then became radically different, but this change the President seemed to ignore. As time went on, it became more and more apparent that the President intended to continue his attitude of isolation and exclusive determination of policies. He made it evident that so far as lay in his power he intended to determine and enforce the policy of the country in respect to participation in the Peace Conference, and also to control as far as possible all steps taken to readjust the industries and commerce of the country upon a peace basis. This was evidenced by his decision to go to Paris as the head of the American Peace Delegation without in any way consulting with Congress on such an unusual step, and by his appointment as associates of persons who it was certain would follow his wishes, no one of whom represented either house of Congress. Furthermore, it was evident that notwithstanding his declaration in his appeal to the voters of October, 1918, that he would accept their judgment without cavil (*A. Y. B.*,

1918, p. 32), he had no intention of attaching any practical weight to the decision then rendered. Thus, no representation was given to the Republican Party in the constitution of the Peace Delegation, nor were Republican leaders consulted in any way. Finally, as already noted, the President let it be known that he did not intend to summon the new Congress in special session if that step could be avoided, thus, during this critical period, while the policies of the country in respect to both foreign and domestic affairs were being determined, denying to the legislative branch and the Republican Party practically all participation in the conduct of public affairs. It is not going too far to say that in every possible way President Wilson indicated a profound distrust of Congress and a determination to meet the problems of peace and of reconstruction unaided by it. This policy, moreover, was not ameliorated by any effort to surround himself with men of strong personalities possessing the confidence of the community. Certain it is that there was no one in immediate touch with the President, officially or otherwise, from whom the people expected independent advice and action. It is doubtful if American history can show a parallel case in which, during an exceedingly grave condition of affairs, the President deliberately excluded all coöperation and disinterested advice on the part of other officers or branches of the Government.

It was inevitable that in these circumstances intense bitterness on the part of Congress, or at least of those members of Congress politically opposed to the President, should develop. This bitterness of feeling dominated almost all action of Congress during the fall of 1918 and all of 1919. It was responsible for the filibuster that brought the third session of the Sixty-fifth Congress to an end on March 4 without the enactment of several of the important general appropriation bills and other measures of great moment. It made exceedingly difficult any adjustment of the differences between Congress and the President with regard to the terms of a Treaty of Peace that would be satisfactory to the United States.

THE TREATY OF PEACE AND THE LEAGUE OF NATIONS

Framing of the League of Nations Covenant.—It is impossible within the space at our disposal to give an exhaustive account of the controversy that raged almost without ceasing during nearly the entire year over the terms of the Treaty of Peace framed at Paris and the question of its ratification by the United States. The best that can be done is to outline in more or less chronological order the more important steps taken and the changing phases that the controversy assumed from time to time.

In his message to Congress of Dec. 2, 1918, President Wilson announced his departure for Paris as the head of the American Peace Delegation (*A. Y. B.*, 1918, p. 21), and on the following day he sailed from New York on the *George Washington*. The actual sessions of the Peace Conference did not begin until Jan. 18. The intervening days were spent by the President in trips to England and Italy, where he made a number of addresses. In all cases he was received with great enthusiasm by the people. The idealistic tone which he gave to his utterances and his advocacy of a democratic determination of public policies and of such principles as those of self-determination and popular government evidently struck a popular note, though they were not entirely welcome to Governments who were already experiencing difficulties in holding in check radical political and social elements.

For the better transaction of its business the Peace Conference constituted a Supreme Council composed of the ranking delegates of the five chief powers, Great Britain, France, United States, Italy, and Japan, the Conference in plenary session acting as a body to ratify the decisions thus arrived at. At the second session of the Supreme Council, held on Jan. 25, provision was made for the appointment of a commission composed of two delegates of each of the five great powers to draft a constitution for a League of Nations. President Wilson and Mr. House were the American delegates on this commission. On Feb. 13 the Commission on the League of Nations completed its draft and next day President Wilson presented it to the Conference

(see also II, *International Relations*). In announcing this event in a cable sent to the Senate and House Committees on Foreign Relations through his Secretary the President said:

The committee which drafted these articles was fairly representative of the world. Besides the representatives of the United States, Great Britain, France, Italy, and Japan, representatives of Belgium, Serbia, China, Greece, Rumania, Czecho-Slovakia, Poland, Brazil, Portugal actively participated in the debate and assisted materially in the drafting of this constitution. Each article was passed only after the most careful examination by each member of the committee. There is a good and sufficient reason for the phraseology and substance of each article. I request that I be permitted to go over with you, article by article, the constitution before this part of the work of the Conference is made the subject of debate of Congress. With this in view, I request that you dine with me at the White House as soon after I arrive in the United States as my engagements permit.

The President's First Return.—On Feb. 15 the President sailed from Brest on the *George Washington* for a brief visit to the United States. His request that the constitution of the League be not made the subject of debate in Congress until his return was not favorably received by the Senate and was not, in fact, conformed with. From the date of its receipt the draft constitution became a subject of almost continuous debate in the Senate. The opposition to it that developed was undoubtedly partly political and partly personal antagonism to the President. On the other hand, there were unquestionably involved in the Covenant, as it was termed, features that were of grave moment to the welfare of the United States. One point that was immediately seized upon for attack was that the adoption of the Covenant would mean the abandonment by the United States of the Monroe Doctrine. In the fight that followed and continued throughout the year over the ratification of the Peace Treaty with Germany as finally drafted, and especially the acceptance of that part of the Treaty providing for a League of Nations (see II, *International Relations*), Senators Lodge, Johnson, Borah, Sherman, Reed, and Poindexter led the opposition to the President. Senator Hitchcock, the

ranking Democratic member of the Senate Committee on Foreign Relations had charge of the President's interests on the floor of the Senate.

The President reached Boston on Feb. 24 and there made his first speech in justification of his proceedings in Paris. This speech, though an eloquent one, was a disappointment in that it consisted wholly of generalities and attempted no real discussion of specific points at issue on their merits. A section of the speech attracting special notice was this:

And when I speak of the nations of the world, I do not speak of the Governments of the world, I speak of the peoples who constitute the nations of the world. They are in the saddle, and they are going to see to it that if their present Governments do not do their will, some other Government shall.

Coming as it did on top of similar expressions in speeches abroad, this appeared to indicate that in the mind of the President, the time had come in the United States, as well as in other countries, to go over the head of existing Government and appeal directly to the people against that Government. Although not so intended, such expressions could scarcely fail to encourage radical elements in their opposition to governing authorities.

Going direct from Boston to Washington, the President on Feb. 26 entertained at dinner the members of the Senate and House Committees on Foreign Affairs. The affair was made as informal as possible. After the President had made a brief statement regarding the draft constitution of the League of Nations, he offered to answer any questions that anyone present might desire to address to him. Asked regarding the bearing of the Covenant upon the Monroe Doctrine, he stated that in his opinion it would broaden that Doctrine and strengthen its application. The dinner, however, had no effect in lessening opposition to the draft.

On March 4 the President left Washington to return to Paris. That night he made a formal address to a large gathering in the Metropolitan Opera House at New York. In this speech he said: "The first thing that I am going to tell the people on the other side of the water is that an overwhelm-

ing majority of the American people is in favor of the League of Nations." This gave rise to much criticism on the part of opponents of the League, who maintained that all the indications were that the American people were not in favor of the League in the form provided by the draft Covenant. The occasion was made more notable by the fact that former President Taft spoke with President Wilson in favor of the League and maintained that the Monroe Doctrine was not placed in jeopardy by it.

Just prior to the termination of the Sixty-fifth Congress on March 4, 37 Senators of the new Congress signed a "Round Robin" to the effect that the League of Nations Covenant "in the form now proposed to the Peace Conference should not be accepted by the United States." As this number represented more than the one-third membership of the Senate sufficient to defeat ratification of a treaty, this document in effect served notice on the President that a treaty providing for a League as planned would not be ratified by the Senate.

The Covenant in the Peace Treaty.—During the absence of the President from Paris, the other members of the American Peace Delegation had consented to an arrangement under which the project for a League of Nations would be separated from the proposals relating to the conditions of peace, to the end that the several nations might act on each separately. This decision the President on his return to Paris immediately reversed. Just prior to his departure from the United States he had stated that:

When that Treaty comes back, gentlemen on this side will find the Covenant not only in it, but so many threads of the Treaty tied to the Covenant that you cannot dissect it from the Treaty without destroying the whole vital structure.

It was apparent that the President desired to make it clear that he was prepared to force the acceptance of the League as a condition to securing any treaty of peace at all.

The Sixty-sixth Congress convened in extra session on May 19. During the period intervening since March 4 the proposed League was under constant public discussion. Much interest attached to the position that would

be taken by such eminent lawyers and Republicans as Elihu Root, former Justice Hughes, and former President Taft. The latter varied his position from one apparently supporting the President's position to one advocating material changes in the Covenant as first drafted. Both Mr. Root and Justice Hughes gave out public statements urging that important amendments be made in the draft before its acceptance by the Peace Conference.

In the Senate consideration of the proposed Covenant was immediately renewed. Early in June it became known that the Peace Conference had agreed upon the Treaty of Peace to be submitted to Germany and that several copies of the Treaty had been seen by persons in the United States. This aroused great feeling in the Senate because it had not been given the document. On June 6 the Senate ordered an investigation of the manner in which certain persons had secured access to this document, which officially was a secret one, and passed without a roll call a resolution introduced by Senator Johnson calling upon the Secretary of State to submit to the Senate the full text of the Treaty "if not incompatible with the public interest." With regard to both the investigation and the demand for the transmission to the Senate of an official copy of the Treaty, the President on June 9 cabled to Senator Hitchcock as follows:

I am heartily glad that you have demanded an investigation with regard to the possession of texts of the Treaty by unauthorized persons. I have felt that it was highly undesirable officially to communicate the text of a document which is still in negotiation and subject to change. Any one who has possession of the official English text has what he is clearly not entitled to have or to communicate. I have felt in honor bound to act in the same spirit and in the same way as the representatives of the other great powers in this matter, and am confident that my fellow-countrymen will not expect me to break faith with them. I hope the investigation will be most thoroughly prosecuted.

Although the Senate did not secure an official copy of the Treaty, Senator Borah had printed in the *Congressional Record* a copy furnished him by the *Chicago Tribune*.

On June 12 Senator Knox reported from the Senate Committee on Foreign Relations a resolution calling for the

separation of the Treaty of Peace and the League Covenant. Although this resolution caused an acrimonious debate, it was not pushed to final action. On June 21 Senator Lodge gave to the public a long and carefully written letter addressed to him by Elihu Root, outlining his position on the proposed League and setting forth the position which in his opinion the Republican Senators should take with reference to action upon it. On June 28 the Peace Treaty with Germany, with the League of Nations Covenant as an integral part, was signed by the Peace Conference.

The President's Final Return.—Sailing from Brest on the day following the signing of the Treaty, June 29, President Wilson on July 10 formally laid the Treaty before the Senate, accompanied by a long message descriptive of it and the manner in which it had been drafted and adopted. Senate precedent was broken in the decision to receive and consider the Treaty in open, instead of executive, session. It now appeared that the President had reached the opinion that it would be wise to seek to establish more frank relations with the Senate if he desired to promote the ends he had in view. In his message transmitting the Treaty he said:

It would not be possible for me either to summarize or to construe its manifold provisions in an address which must of necessity be something less than a treatise. My services and all the information I possess will be at your disposal and at the disposal of your Committee on Foreign Relations at any time either formally or in session, as you may prefer, and I hope that you will not hesitate to make use of them.

Following up this invitation, the President announced that, beginning on July 17, he would see Senators individually in order to explain to them his position and, if possible, to meet any objections to the Treaty on their part. Little evidence was available, however, that this procedure bettered in any material way the strained relations between the Senate and the President. Notwithstanding his declaration, as above quoted, the President continued to withhold from the Senate documents and information that the latter desired and that it or its Committee on Foreign Relations continued

to demand through the passage of resolutions or direct request to the President. Copies were thus requested of an alleged secret peace treaty between Japan and Germany, of a memorandum alleged to have been filed by Secretary Lansing, General Bliss, and Henry White advising against the acceptance of the Shantung award (see II, *International Relations*), and of the American draft of the League of Nations Covenant, and complete data as to the proceedings in the peace negotiations at Paris. In reply the President denied that he had any knowledge of a Japanese-German peace treaty; stated that the memorandum regarding the Shantung award was of a confidential character and contained statements regarding other nations that would be productive of ill-feeling if made public; and declared that he did not have the records of proceedings at Paris in shape for transmission to the Senate even if such act were advisable. The general position taken by the President was that the function of negotiating treaties rested in his hands alone and that the function of the Senate did not begin until a complete draft of the treaty was in its possession. The Senate, on the other hand, claimed that according to the Constitution treaties should be negotiated with its advice and consent, and that at any rate it should have the information that it deemed necessary to enable it to act intelligently upon treaty drafts coming before it.

On July 17 the President wrote to Senator Lodge, as Chairman of the Committee on Foreign Relations, asking approval of the nomination by him of American representatives on the Reparation Commission, the creation and operation of which were provided for by the Peace Treaty. This the Committee on July 22 declined to grant, on the grounds that the Treaty was not yet ratified and in effect and that, as approval of nominations was required of the Senate as a whole, the Foreign Relations Committee had no authority to act.

The Treaty of Alliance with France.—A bitter attack was made upon the President for not submitting to the Senate the treaty that had been negotiated with France (see II, *International Relations*), under the terms

of which the United States would come to the assistance of France if the latter should be wantonly attacked by Germany. By its terms this proposed treaty was to be submitted to the Senate at the same time as the Treaty of Peace. It was claimed that the President had been guilty of bad faith towards France in not complying with this requirement. No explanation was ever given by the President as to why he did not conform with the provisions of the treaty he had negotiated. Later, on July 26, the treaty was submitted. A question having arisen as to whether the United States could constitutionally enter into such a treaty, the Senate Judiciary Committee was asked to report upon it. This it did on Sept. 22, reporting unanimously that such a treaty could be constitutionally entered into.

The Peace Treaty in the Senate Committee.—The Treaty of Peace upon its reception by the Senate on July 10 was referred to the Committee on Foreign Relations for consideration and report. The Committee announced that not only would the Treaty be read by it section by section, but that hearings would be held. At these hearings much information was elicited from persons who had participated in the peace proceedings at Paris that the Senate had been unable to obtain by direct request upon the President. The testimony of Secretary Lansing and of Wm. C. Bullitt, who had been sent by the President to Russia to report upon conditions there (see also II, *International Relations*), proved to be of exceptional interest. Secretary Lansing brought out clearly that all of the President's colleagues, with the possible exception of Mr. House, were opposed to accepting the demands made by Japan in respect to the Chinese province of Shantung. He stated that it was his opinion that if the President had held out, Japan would have been compelled to yield. The testimony of Secretary Lansing was further significant as showing the extent to which the President ignored his colleagues in reaching important decisions. The sensational feature of Mr. Bullitt's testimony was his report of a conversation with Secretary Lansing in which the latter was quoted as declaring the League Covenant to be

thoroughly bad and in his belief one that if the Senate thoroughly understood, it would reject. Secretary Lansing refused to comment upon this statement by Mr. Bullitt, the inference thus being left that it was substantially correct. Some time later, however, in an address delivered on Sept. 20, Secretary Lansing did urge the ratification of the Treaty in order that the world might more speedily return to normal conditions.

On Aug. 14 Senator Lodge, on behalf of the Committee on Foreign Relations, requested the President to grant the Committee an interview for the purpose of considering with him questions presented by the Peace Treaty. To this request was attached the unusual condition that the interview, if granted, should be public in the sense that a full report of the discussion should be given to the press. This request was granted and the interview took place on Aug. 19. At this meeting the President was asked a large number of questions, all of which he answered with great skill. At no time was any attempt made to hector or embarrass him, and the interview was concluded without any untoward incident. Although the position of the President was in many respects made clear, no practical results were achieved towards bringing the two opposing elements into harmony.

The President's Speaking Tour and Collapse.—On Sept. 3 the President put into execution his long contemplated plan of making an extended speaking tour of the country in defense of the Treaty of Peace. His programme called for a trip to the Pacific Coast with speeches *en route* both going and returning. This "swing around the circle" was in effect an appeal to the people to support his position as against that of the opposition in the Senate. To counteract its effect the leaders of the opposition sent Senator Johnson to "trail" the President and present the other side. Both speakers attracted large crowds and had an enthusiastic reception. The President, however, was unable to carry out his programme as planned. On Sept. 26, while on his return trip, came the announcement that the President had suffered a complete breakdown and that it was imperative for him to

return at once to Washington. At the outset his condition was very serious. Gradually, however, it improved, though for many weeks he was forced to remain in bed, unable to transact any but the most pressing business.

The Peace Treaty in the Senate.—On Sept. 10 Senator Lodge presented to the Senate the report of the Committee on Foreign Relations on the Peace Treaty with Germany, thus bringing it formally before the Senate for action. The report recommended the ratification of the Treaty provided that certain amendments were made and that ratification be accompanied by certain reservations. Most of the 46 amendments suggested were of only technical significance; only four were of major importance, their purposes being:

(1) To equalize the vote of the United States and Great Britain and her colonies and Dominions in the League of Nations.

(2) To provide that nations that are parties to a dispute shall not vote in the adjustment of it in the League Council.

(3) To restore the former German privileges in the Shantung Peninsula to China, instead of giving them, as the treaty provided to Japan.

(4) To eliminate the United States from participation in all the commissions created under the Treaty with the exception of the Reparation Commission, the American delegate to vote on that Commission only on matters involving international shipping, except as expressly instructed, when occasion arises, by his own Government.

Formal reading of the Treaty was begun on Sept. 15 and concluded on Oct. 20. All amendments submitted, including those proposed by the Committee on Foreign Relations, were defeated. The Shantung amendment was rejected by a vote of 35 to 55 and the Reparation Commission amendments by a *viva voce* vote. Senator Johnson's amendment for equalizing the American and British vote in the League was lost on Oct. 27 by a vote of 38 to 40, nine Republicans opposing it. On Oct. 29 the reading of the Treaty for purposes of amendment was completed. On Nov. 4 Senator Lodge's motion to strike from the Treaty Arts. 156, 157, and 158, dealing with the Shantung award, was rejected by a vote of 26 to 41.

The Reservations.—Consideration of the reservations to accompany the ratification of the Treaty was begun

I. AMERICAN HISTORY

on Nov. 6. Senator Lodge presented a revised list of 14 reservations recommended by the Committee on Foreign Relations and a reservation to the Preamble. On Nov. 7 the first real test of strength of the advocates and opponents of reservations took place on the question of the reservation to the Preamble, which read as follows:

The reservations and understandings adopted by the Senate are to be made a part and condition of the resolution of ratification, which ratification is not to take effect or bind the United States until the said reservations and understandings adopted by the Senate have been accepted by an exchange of notes as a part and condition of said resolution of ratification by at least three of the four principal Allied and Associated Powers, to wit, Great Britain, France, Italy, and Japan.

This reservation was adopted by a vote of 48 to 40. Three Democrats, Gore, Reed, and Walsh of Massachusetts, voted with the Republicans in its favor.

All but the last of the remaining 14 reservations, summarized below, were adopted in the succeeding 10 days.

(1) The United States shall be the sole judge of fulfillment of its obligations in notice of withdrawal from the League of Nations, and notice of withdrawal shall be given by concurrent resolution of Congress.

(2) The United States assumes no obligation to protect the territorial integrity or political independence of any country or interfere in controversies between nations unless Congress, by joint resolution, shall so provide.

(3) No mandate shall be accepted by the United States except by the action of Congress.

(4) The United States reserves the right to decide what questions are within its domestic jurisdiction; declares domestic questions to be solely within its own jurisdiction; and specifically prescribes immigration, labor, coastwise traffic, the tariff, and commerce as domestic questions.

(5) Declares the Monroe Doctrine to be wholly without the jurisdiction of the League of Nations and not subject to inquiry or arbitration.

(6) The United States withholds its assent to the Shantung provisions and reserves full liberty of action with respect to any controversy growing out of them.

(7) Congress shall provide for and appoint all representatives of the United States on commissions set up under the Covenant of the League, and none other than persons so appointed shall represent the United States.

(8) Interference with trade between Germany and the United States by the

Reparation Commission shall occur only with the sanction of Congress.

(9) Congress shall control all expenses of United States commissions under the League of Nations.

(10) In case of agreement to limit armaments, the United States reserves the right to increase its armament for defense or when engaged in war without consulting the Council of the League.

(11) The United States reserves the right to permit the nationals of a Covenant-breaking state to continue trading with the nationals of this country.

(12) Nothing in the Covenant or the Treaty shall be taken to approve any act otherwise illegal or in contravention of the rights of citizens of the United States.

(13) The United States declines to take an interest in or responsibility for disposition of the overseas possessions of Germany relinquished under the Treaty.

(14) The United States reserves the right to decide what questions affect its honor or vital interests and refuses to submit them to arbitration. *Rejected.*

Ratification Rejected.—Following this victory of the opponents of ratification of the Treaty in the form submitted by President Wilson, Mr. Hitchcock had an interview with the President in which the situation was gone into fully. He reported that the President was prepared to accept merely interpretative reservations, but would unalterably oppose any requiring further action on the part of the other signatories to the treaty. With the preliminaries of the amendment of the treaty and the adoption of reservations out of the way, vote on the ratification of the treaty was in order, but Mr. Hitchcock, on Nov. 19, read the following letter addressed to him by the President:

You were good enough to bring me word that the Democratic Senators supporting the Treaty expected to hold a conference before the final vote on the Lodge resolution of ratification and that they would be glad to receive a word of counsel from me.

I should hesitate to offer it in any detail, but I assume that the Senators only desire my judgment upon the all-important question of the final vote on the resolution containing the many reservations of Senator Lodge. On that I cannot hesitate, for, in my opinion, the resolution in that form does not provide for ratification, but rather for the nullification of the Treaty. I sincerely hope that the friends and supporters of the Treaty will vote against the Lodge resolution of ratification.

I understand that the door will probably then be open for a genuine resolution of ratification.

I trust that all true friends of the Treaty will refuse to support the Lodge resolution.

This letter, it will be seen, urged that a resolution of ratification containing the reservations that had been adopted by the Senate should be rejected. The vote on the Lodge resolution of ratification was rejected by a vote of 41 to 51. A resolution calling for the ratification of the Treaty without any reservation was also rejected by the vote of 38 to 53. In view of the fact that a two-thirds affirmative vote is required for the ratification of a treaty, it will be seen that the Treaty of Peace with Germany, both with the reservations and without them, was emphatically rejected, the adverse vote in each case being more than a majority.

Immediately following the failure of the ratification of the Treaty, Senator Knox introduced a concurrent resolution declaring that a condition of peace exists between the United States and Germany. It will be noted that this resolution took the form of a concurrent resolution, which does not require the approval of the President. The resolution was referred to the Committee on Foreign Relations for consideration and report. On the same day, Nov. 19, the special session of the Sixty-sixth Congress came to an end, and further consideration of the Treaty went over to the new session.

The Treaty Deadlocked.—Contrary to expectation, the President made no reference to the ratification of the Treaty of Peace in his message to Congress on its assembly on Dec. 1. The result of this was to leave the

status of action upon the Treaty very much up in the air. Each side apparently sought to put upon the other the responsibility for the initiation of action that would break the deadlock. As a result of an interview with the President, Senator Hitchcock stated, on Dec. 5 as reported in the press, that the President regarded responsibility for the Treaty as having been shifted from his shoulders to others and that he was disposed to let it rest there. Senator Lodge, on the other hand, stated that the Senate had taken definite action on the Treaty as submitted by the President and that it was consequently incumbent upon the latter either to withdraw the Treaty and to resubmit it in a form more likely to meet with the approval of the Senate or to take some other action showing willingness on his part to meet the wishes of the Senate as formally expressed. Here the matter rested for some days. On Dec. 11 Senator Underwood of Alabama proposed in the Senate the constitution of an informal conciliation committee which should seek to redraft the reservations in a form that would constitute an acceptable compromise. There can be little question that a majority of the Senate desired that the Treaty with reasonable reservations should be adopted. The proposal of Senator Underwood, however, was not acceptable to Senator Lodge, who stood rigidly on his position that the only method to revise the Treaty was through the President's taking the initiative.

PROBLEMS OF RECONSTRUCTION

Reconstruction in the President's Message.—In his message to Congress of Dec. 2, 1918, President Wilson took the optimistic view that not much was needed in the way of direct action by the Government to bring about a speedy restoration of normal conditions. He said:

So far as our domestic affairs are concerned, the problem of our return to peace is a problem of economic and industrial readjustment. That problem is less serious for us than it may turn out to be for the nations which have suffered the disarrangements and the losses of war longer than we. Our people, moreover, do not wait to be coached and led. They know their own business, are quick and resourceful at any readjustment, definite

in purpose and self-reliant in action. Any leading strings we might seek to put them in would speedily become hopelessly tangled because they would pay no attention to them and go their own way. All that we can do as their legislative and executive servants is to indicate the process of change here, there, and elsewhere as we may. I have heard much counsel as to the plans that should be formed and personally conducted to a happy consummation, but from no quarter have I seen any general scheme of "reconstruction" emerge which I thought it likely we could force our spirited business men and self-reliant laborers to accept with due pliancy and obedience.

Following this he indicated that as rapidly as possible all industrial and commercial restrictions would be re-

moved and the special war agencies disbanded, restrictions and agencies being preserved only where necessary to regulate our intercourse with foreign countries.

These expectations of the President were speedily nullified by events. It is true that, after a period of hesitation, industry generally resumed operations on a basis to give reasonably full employment of labor, and the country was consequently spared the evils of widespread unemployment (see XIV, *Unemployment*). On the other hand, there were few or no indications of a lessening of the evils of excessive prices and profiteering, nor did the relations of labor and capital tend to become more harmonious. On the contrary, each of these problems seemed to be in the way of becoming increasingly more acute. Indeed, the President had scarcely left our shores before the necessity for Government action with regard to these problems became imperative. The character of the problems presented and the nature of the action proposed or taken are described in the sections following.

WAR FUNCTIONS

Dissolution of Special War Agencies.—In the YEAR BOOK for 1918 (pp. 38–81), a detailed account was given of the organization and operation of the large number of special agencies that were created for meeting problems arising out of the war. Some of these agencies had to be continued to meet after-war conditions, and an account of their operations during 1919 is given elsewhere in this article. A considerable number of such agencies, however immediately upon the signing of the armistice entered upon the task of winding up their affairs. The War Industries Board, for example, was dissolved by executive order dated Dec. 31, 1918. Its Price-Fixing Committee, however, was continued for two or three months in order to wind up its affairs; other pending matters were transferred to other Government services (see also XII, *The Conduct of Business*). The War Labor Board was dissolved on June 30, due to the fact that Congress failed to provide for its support after that date (see also XV, *Labor*).

War Trade Board.—The signing of the armistice had probably less immediate effect upon the operations of the War Trade Board than upon those of any of the other special war agencies. This was due to the fact that the blockade against Germany and her allies was maintained and that the shortage in supplies and ocean shipping was such as to make it desirable to continue control of trade movements. Nevertheless, the Board at once began the lessening or removal of restrictions upon imports and exports. On April 28 announcement was made that from the following day, all enemy trading lists theretofore issued or compiled by the War Trade Board were withdrawn, and that all disabilities attached to trade and communication with persons included in such lists would cease to operate. This order, however, did not affect existing restrictions against trade and communication between the United States and Germany or Austria-Hungary. The reservation was also made that the enemy trading list might be reimposed at any time should circumstances make such action desirable. On July 1 the Board was formally dissolved, its activities being transferred to a special division of the State Department created for the purpose of handling them. (See also XIX, *External Commerce*.)

U. S. Employment Service.—The Labor Department made an especially strong effort for the continuance on a permanent basis of the nation-wide Employment Service it had built up during the war, which was just coming into full operation when the war came to an end. This proposal, however, did not meet with favor in Congress, which declined to vote the necessary funds for the support of the Employment Service, notwithstanding the fact that the President in his message of May 20 strongly urged its continuance. The small sum granted to the Labor Department for the Employment Service compelled its contraction to a relatively small organization. (See also XIV, *Unemployment*.)

Alien Property Custodian.—The Office of the Alien Property Custodian was necessarily continued to manage the large amount of enemy property that had been taken over by it. Upon

the resignation of A. Mitchell Palmer to accept appointment as Attorney-General of the United States, Francis P. Garvan was designated by the President on March 4 as Alien Property Custodian. No action has been taken to determine the final disposition of the enemy property taken over by the Government.

Fuel Administration.—The Fuel Administration was one of the first war agencies to wind up its affairs and go out of business. Early in the year it cancelled practically all of the restrictions upon the handling of coal and other fuels. The office of Fuel Administrator, however, continued nominally in existence. When the strike of the bituminous coal miners was inaugurated on Nov. 1 (see *infra*), the President practically revived this agency to control prices under the threatened shortage. By an executive order issued on Oct. 30, he cancelled orders of Jan. 31 and Feb. 20 by which control over the coal industry had been practically abolished, and restored prior regulations in so far as they had to do with the fixing of prices of bituminous and lignite coal at the mines, the fixing or regulating of the commissions of middlemen dealing in bituminous and lignite coal, and the fixing or regulating of gross margins or prices of wholesale and retail dealers in bituminous and lignite coal, and again conferred upon the Fuel Administrator the duty of administering the restored regulations.

Food Administration.—Although the demand of Europe for food products was bound to be great notwithstanding the cessation of hostilities, the exercise of a rigid control over the food industry seemed no longer to be necessary. The Food Administration accordingly began the cancellation of its regulations imposing restrictions upon the handling of food products and the winding up of its own affairs preparatory to dissolution. A start was made in January, when the licensing system was dropped in respect to many commodities. On Jan. 31 all restrictions on margins of profit on foodstuffs except cottonseed products and eggs were cancelled. On April 1 the meat-packing industry, which had been under Federal license since October, 1917,

was released from control. The only control over food commodities then retained related to cottonseed and cottonseed products, sugar, and wheat and its products, the latter coming under the supervision of the Food Administration's Grain Corporation. The Food Administration as a war agency may thus be deemed to have come to an end on that date.

Grain Corporation.—There still remained in existence, however, the Grain Corporation and the Sugar Equalization Board, bodies having important duties in respect to the commodities wheat and sugar. Late in January Congress received an Administration measure empowering the President to sustain the guarantee of \$2.20 a bushel to the farmers for the wheat crop of 1919. This bill, which had been drawn by the Food Administration and the Department of Agriculture, was an elaborate measure. It not only made an appropriation of \$1,000,000,000 with which to meet any loss the Government might sustain in maintaining its guarantee, but continued in force as regards wheat and wheat products practically all the power that had been conferred upon the President by the old Food and Fuel Control Act of 1917. The bill became a law on March 4, being the last enactment of the Sixty-fifth Congress.

The administration of this law was vested by the President in the Grain Corporation. On July 1 Herbert C. Hoover resigned as chairman of the Board of Directors of the Food Administration Grain Corporation, his place being taken by Julius H. Barnes. The Corporation itself was reorganized as the U. S. Grain Corporation. To this Corporation was also turned over the control over imports and exports of wheat and flour that had formerly been vested in the War Trade Board. On July 16 the President issued a proclamation placing under license the import and export of wheat and wheat flour, this step being necessary in order that the Government might better control the distribution of its surplus wheat among foreign nations and in other respects better carry into effect the purpose of the Act described above.

For a time the indications were for so large a crop of wheat that it appeared certain that the Government

would suffer a serious loss in maintaining its guarantee. Adverse conditions, however, materially cut down early expectations, and the demand abroad for wheat continued so strong that it became clear that the billion-dollar appropriation would have to be drawn upon to but a slight extent, if at all. When it appeared that the market price of wheat would exceed the Government guarantee, a demand arose for repealing the guarantee and the provisions enabling the Government to stabilize the price. A demand also arose that the Government should sell wheat at less than cost in order to counteract the continued high cost of living. Both of these demands were successfully resisted. (See also XVI, *Agriculture*.)

Sugar Equalization Board.—Towards the end of the year a shortage developed in the supply of sugar equal to any that had been experienced during the war, and the rationing of consumers had again to be resorted to. With the price of sugar rapidly rising, it was felt that a great mistake had been made by the President in not following the recommendation of the Sugar Equalization Board that it be authorized to purchase the 1920 sugar crop of Cuba. In November a bill was introduced in Congress authorizing the Board to continue in operation during 1920 and to purchase such of the 1920 Cuban crop as had not been sold. The bill passed the Senate on Dec. 12 and the House a few days later. Although the Act continues the Sugar Equalization Board in existence for another year, the power to control distribution through its licensing system was restricted to a period of six months. In the course of the debate on the bill it developed that the Board had made a profit for the Government of \$38,000,000 as the result of its operations.

Council of National Defense.—Although the primary purpose for which the Council of National Defense had been developed during the war passed away with the termination of hostilities, Congress decided to provide for its continuance as a reconstruction agency. In February the Council created a new service known as the Reconstruction and Research Division. This division made various

studies and prepared a number of reports giving its conclusions regarding action to facilitate the passage of the country from a war to a peace basis. Later in the year it paid special attention to devising means for combatting the high cost of living. The Council also took an active part in projects for the determination of the resources of the United States for war purposes, bringing about the creation of an interdepartmental board, of which the Director of the Council was made chairman to coördinate the efforts of the various services of the Government in this direction.

Department of Commerce Industrial Board.—During the first few months following the signing of the armistice, the feeling was strong that the greatest obstacle to prompt resumption of industrial operations on a normal basis was uncertainty with regard to future prices. A remedy for this condition was sought in a plan to stabilize prices for a reasonable time. To consider how this might best be accomplished, the Secretary of Commerce called a conference at Washington on Feb. 5 of the former heads of the more important divisions of the late War Industries Board, representatives of various Government services, and others. This conference recommended that the Government immediately provide for the creation or an agency which should seek, through coöperation with the various industries, to determine the prices that should be paid for basic materials during the ensuing few months. In compliance with this recommendation the Secretary of Commerce announced on Feb. 25 that, having secured the approval of the President, he had created an Industrial Board of the Department of Commerce whose duty it would be "to put into practical effect a programme for the readjustment of prices for basic materials in such a fashion as to create a firm foundation on which the consumer can base his future purchases." George N. Peek, formerly Vice-Chairman of the War Industries Board, was made chairman of the Board.

By March 22 the Board was able to announce that, as a result of conferences with the U. S. Steel Corporation and other

large producers of iron and steel, a schedule of prices for iron and steel products had been agreed upon which represented a reduction from existing prices. To the surprise of the public Walker D. Hines, Director-General of Railroads, almost immediately announced that in making his purchases of steel rails and other iron and steel products, he did not consider himself bound by the schedule of prices that had been agreed upon. This attitude on the part of the Railroad Administration not only defeated the attempt of the Industrial Board to fix iron and steel prices, but discredited its entire effort to stabilize prices through a Government agency working in connection with the voluntary coöperation of producers. As a result the Secretary of Commerce on May 9 announced the dissolution of the Board and the abandonment of the enterprise. Immediately afterwards publicity was given to an opinion of the Attorney-General that the attempted action of the Board was illegal, being in violation of the Sherman Act and statutes regulating the purchase of supplies by Government agencies. A feature of this episode that attracted no little attention was the evidence it afforded of a lack of unity of policy and programme on the part of the Administration. (See also XIII, *The Conduct of Business.*)

Foreign Food Relief.—The end of hostilities did not lessen in any appreciable degree the acute shortage of food supplies in Europe. Conditions were especially acute in Poland and Serbia. It was evident that this shortage, if it was to be met at all, would have to be met in large part by the United States. To handle this situation the Allies constituted a Supreme Council of Supply and Relief for the relief of the liberated countries. On Nov. 9, 1918, Herbert C. Hoover was sent to Europe by President Wilson for the purpose of making a survey of the situation and to serve as representative of the United States, together with Norman H. Davis, on the Council. On the organization of this body Mr. Hoover was made its Director-General. He was thus at once the head of the international body and of the American Relief Administration later organized.

On Jan. 2 President Wilson cabled from Paris to the Secretary of the Treasury directing him at once to request Congress to appropriate at least \$100,000,000 for the relief of the stricken populations of the liberated territories. In this cable he said:

Extended investigation and consideration of the food situation in certain parts of Europe disclose that especially the urban populations in certain areas are not only facing absolute starvation during the coming winter, but that many of these people are unable to find immediately resources with which to purchase their food.

These regions have been so subjected to destruction by war, not only of their foodstuffs, but of their financial resources and their power of production and export, that they are utterly incapable of finding any resources that can be converted into international exchange for food purchase. While the Secretary of the Treasury can accept obligations of certain Governments, and through these measures their situations can be cared for temporarily, there are still other areas through eastern and southern Europe where such arrangements cannot be made. This applies more particularly to the liberated peoples of Russia. In these countries freedom and government will slowly emerge from chaos and require our every assistance.

The total shipments of foodstuffs from the United States to all parts of Europe during the next seven months will be likely to exceed one and one-half billion dollars, and from our abundance we can surely afford to offer succor to these countries destitute of resources or credit. The minimum sums upon which this work can be carried on for the next six months in the countries above mentioned will amount to at least \$100,000,000.

A bill to carry into effect this recommendation, which was renewed in the strongest terms on Jan. 11, became law on Feb. 24. An amendment inserted by the Senate prohibited the use of any of the money granted for the relief of populations in former enemy territory, and the act was entitled, "An Act Providing for the relief of such populations in Europe and countries contiguous thereto outside of Germany, German-Austria, Hungary, Bulgaria, and Turkey as may be determined by the President as necessary." It made available the sum of \$100,000,000 for the purchase and sale of food products to the countries named. By an executive order of the same date the President vested in Mr. Hoover, as Director-General of the American Relief Administration, the carrying out of the provisions of the Act. The order provided that Mr. Hoover should

have "full power to determine to which of the populations named in said Act the supplies should be furnished and in what quantities, and further to arrange for reimbursement so far as possible as in said Act provided."

COST OF LIVING

Administrative Attacks on the Problem.—Political if no other considerations made it imperative that the National Government should concern itself with the problem presented by the continued, if not steadily increasing, high cost of living that marked the year (see XII, *Business Conditions*; and XV, *Labor*). By midyear it became apparent that something tangible had to be done by the Government to relieve the situation. It was announced on Aug. 1 that on the initiative of Attorney-General Palmer, the President had turned his attention to the action to be taken to combat high prices and the collateral evil of profiteering, which was believed to be widespread, and that a select committee had been constituted to consider ways and means, composed of Walker D. Hines, Director-General of Railroads, Wm. B. Colver, Chairman of the Federal Trade Commission, and R. C. Leffingwell, Assistant Secretary of the Treasury. Various resolutions and bills were also introduced in Congress designed to attack the problem, among other means, by authorizing the Government to fix prices by directing the sale of wheat at less than the guaranteed price (see *supra*), a proposal vigorously and successfully combatted by the Grain Corporation. The House had planned to recess for several weeks, but at the request of the President gave up this intention in order that prompt attention might be given to relief measures:

On Aug. 6 the Attorney-General announced that he was proceeding vigorously to exert the powers of the Government to prevent hoarding and unjust prices. To this end he had sent to all U. S. district attorneys the following telegram:

The Food Control Act, which is still in force, in Sec. 6 makes hoarding of necessities, as therein defined a crime, and Sec. 7 provides that whenever neces-

saries shall be hoarded they may be proceeded against by process of libel for condemnation. There is much complaint in the country about the extensive storage of food products, which in many instances may amount to a violation of the law.

You are hereby directed immediately to employ all facilities at your command and make use of all available sources of information to seek out all dealers guilty of hoarding within the meaning of the Act, and to ascertain if in any other respect these provisions of the Food Control Act have been violated in your district.

The President's Message.—On Aug. 8 President Wilson addressed the two Houses of Congress in joint session on the campaign against the high cost of living and the evils which he believed to be in part at least responsible therefor. The message, which was a long one, called attention to the excessive prices of articles of ordinary consumption, cited instances of increases in prices during the preceding few weeks, inveighed against hoarding, profiteering, and other illegitimate practices, and outlined the steps already taken by the Administration to meet the situation and the further action which in his opinion remained to be taken by Congress. Incidentally he took advantage of the occasion to urge a speedy ratification of the Peace Treaty on the ground that the unsettled conditions perpetuated by the failure to act definitely upon it was in no small degree responsible for underproduction and consequent high prices. He informed Congress that the Administration contemplated the following steps:

- (1) Limit wheat shipments and credits to lower the price of flour here.
- (2) Sell surplus stocks of food and clothing now in the hands of the Government without profit.
- (3) Draw surplus stocks out of storage and put them upon the market, by legal action wherever necessary.
- (4) Prosecute combinations of producers and traders formed for the control of supplies and prices.
- (5) Employ publicity, through the Departments of Commerce, Agriculture, and Labor and the Federal Trade Commission, to acquaint the public with supplies not available because of hoarding and methods of price fixing.

He recommended that Congress supplement existing legislation by enacting laws for the following purposes:

- (1) To extend the provisions of the Food and Fuel Control Act to peace times and widen its scope so as to make it cover articles of necessary personal consumption other than food products.

(2) To regulate the cold-storage industry by providing that a limit should be placed upon the length of time that commodities might be kept in storage and that goods stored should bear the date of their receipt and the price paid for them at the time they went into storage.

(3) To provide a penalty for violation of the profiteering clauses of the Food and Fuel Control Act.

(4) To require all goods destined for interstate commerce to be marked when possible with the price at which they left the producer.

(5) To license all corporations engaged in interstate commerce in order that they might be better controlled so as to insure competitive selling and to prevent unconscionable profits.

(6) To control the issue of corporate securities.

(7) To appropriate money to enable the several services of the Government to make investigations and to give to the public statistical data relative to retail prices.

The President was emphatic in declaring that the existing high prices were not justified by economic conditions, but were the result in no small part of improper practices on the part of manufacturers and dealers. He called attention also to the intimate relation that this condition of excessive prices bore to the problem of industrial unrest, since such high prices were made the basis for demands by labor for higher wages which, if granted, tended again to augment prices and thus keep in motion the vicious circle of price and wage increases.

Legislation.—The President's recommendations were favorably received by both parties in Congress and immediate steps were taken towards putting them into effect. The measure upon which attention was first concentrated was that providing for the regulation of cold-storage warehouses. A bill introduced by Representative Hutchinson, providing for the licensing of all cold-storage warehouses by the Department of Agriculture and the regulation of the industry along the lines of the New Jersey Act, to which the President had referred in his message, was passed by the House on Sept. 30, but was not acted upon by the Senate.

On Aug. 13 the Attorney-General wrote to Mr. Gronna, chairman of the Senate Committee on Agriculture, reinforcing the President's recommendation for the extension of the Food

and Fuel Control Act, and bills for this purpose were introduced in both houses. Considerable discussion centered about a proposal to include in the measure a grant of power to fix prices in both peace and war times; on the advice of the Attorney-General, however, this feature was abandoned, on the ground that it constituted too drastic and far-reaching a change in governmental policy and would place upon the President the necessity for determining what were fair prices, an undertaking which would cause great delay and involve an elaborate machinery. Another feature attracting much interest was one that would enable the Government to reach the small profiteers or "little gougers," as they were designated. The Food and Fuel Control Act as it stood had provisions directed against this class, but they were unenforceable because no penalty was provided for their infraction. Section 5 of the existing law, which provided for the licensing of food dealers, exempted all doing a business of less than \$100,000 a year. This exemption the new bill proposed to eliminate. The Attorney-General, in explaining how the plan to get at the retail dealers who profiteer would operate, said that the decision as to guilt or innocence would be left to a court and jury. The fair-price committees which would have the Government's aid were to be composed of representatives of the wholesalers, retailers, housewives, and labor. They would fix fair prices, and the majority of dealers were expected to observe these prices, but when a dealer refused to accept the fair prices, action would be begun in court. On Aug. 22 the bill passed the House, and on Sept. 12 the Senate passed it with some amendments. The differences between the two houses were adjusted, and on Oct. 22 the bill became law.

The proposal of the President that funds be granted to enable the several Government services to make investigations into the cost of living, prices, etc., was followed by supplementary estimates from a number of them calling for the appropriation of sums aggregating some \$3,000,000. These requests for funds were not favorably received by the House Committee on Appropriations, and all but that of the

Department of Justice for \$1,000,000 for the detection of crime and the enforcement of the law were denied. The Committee took the position that chief reliance in keeping down excessive prices and in preventing profiteering was to be placed on a rigid enforcement by the Department of Justice of the laws designed for these purposes.

In the meantime Attorney-General Palmer, who had taken the lead in the Cabinet in the campaign against high prices, took steps to revive the system of fair-price committees that had functioned during the war under the Food Administration. On Aug. 10 he sent the following telegram to the state food administrators who had served under the Food Administration, which sets forth very clearly what was desired by the Administration:

In order to secure accurate information relative to charges of profiteering by dealers in the necessary commodities, it is the desire of the Government to ascertain whether such dealers are making more than a fair margin of profit. Will you assist in your states by requesting those persons who have been county food administrators under your jurisdiction to appoint fair-price committees, including one retailer of groceries, one of drygoods, a representative of the producers, of organized labor, of housewives, two or three representatives of the public generally, and also a wholesale dealer when practicable.

Please request them to pursue approximately the same inquiries with reference to food products and ordinary necessities of drygoods and clothing that were pursued by your fair-price committees under the Food Administration Act. This committee will be an extra-legal body without power to summon witnesses or fix prices. It is requested, however, to ascertain the cost prices to determine the fair margin of profit, and if retail prices are in excess of what the committee regards a fair price, to have published its list of fair prices, reporting to you for review. You are requested to report to the Department of Justice a general review of the situation in your state.

Any evidence of hoarding or other violations of the Food Control Act which may be developed in the work of such committees should be turned over to the United States attorney, who will be instructed to employ all his resources as well as those of the Bureau of Investigation to co-operate with you and your committees in seeking out and punishing all violators of the law.

This request of the Attorney-General was very generally complied with. To supplement it the U. S. district attorneys throughout the country took

energetic action in the way of seizing goods which were being hoarded in contravention of the Food Control Act, and large quantities of food products were so seized in a number of cities.

Regulation of the Meat-Packing Industry.—A phase of the movement for combating the high cost of living that was much in evidence during the year was the acute controversy that arose between the Federal Trade Commission and the meat packers with regard to the legitimacy of the profits that were being made by the latter and of certain of their business practices. The claim was made that not only were these firms demanding excessive prices and thus securing unwarranted profits, but that they were gradually extending their business to food products other than meats, and were in effect building up a monopoly in the handling of food products. From time to time the Federal Trade Commission published instalments of its report giving the results of its investigations of the industry, in which the charges above described were set forth in no uncertain terms. Thus, in a part of its report published in July the Commission said:

They [the packers] discriminate against and put at great disadvantage independent buyers, who are their competitors.

They manipulate, on occasions, the live-stock market in such a way as to cause extreme and unwarranted fluctuations in the daily prices paid for live stock. They have eliminated many competitors and prevented new ones from coming in. They have restricted the meat supply of the nation by manipulating the daily live-stock prices and thus discouraging the producers of live stock.

Of the meat trade in the hands of interstate slaughterers in the United States, the five big packing companies have more than 73 per cent. of the total. They have the prices of dressed meat and packing-house products so well in hand that, within certain limitations, meat prices are made to respond to their wishes.

The charge was also made that the five big packers acted in close coöperation with each other in fixing prices and in determining the conditions of the industry generally. These reports inspired Congress to steps towards legislation for the purpose of bringing the packing industry under more effective control. The leading proposal for this purpose was the bill known as the Kenyon-Anderson bill,

which provided for the establishment of a system for licensing packers and for taking away from them the ownership of special shipping facilities.

The packers strenuously denied the charges against them. Nevertheless, on Aug. 6 Attorney-General Palmer announced that he had carefully reviewed the evidence developed by the investigation of the Federal Trade Commission and at hearings before committees of Congress; that he was satisfied that the packers were maintaining in effect a combination in restraint of trade; and that he intended to institute proceedings in the courts against the packers on this ground. On Dec. 19 the Department of Justice announced that an agreement had been reached between the Department and the "Big Five" by which the latter agreed forever to dissociate themselves with all lines of industry unrelated to the meat-packing industry and that

they would acquiesce in a decree being issued by the courts, in the case that had been brought against them by the Government, to this effect. This means that the packers undertake for the future to give up their activities and to dispose of their interests in the handling of food products or other lines not constituting a part of the meat-packing industry strictly speaking. These unrelated interests have included public stockyards, terminals, market newspapers, public storage warehouses, and general wholesale groceries. On the face of it the agreement represents a great victory for the Government in its contest with the packers. What its effect upon prices and the interests of the consumers will be, and whether it will remove the necessity for legislation such as that proposed by the Kenyon-Anderson bill, remain to be seen.

THE NATIONAL GOVERNMENT AND LABOR

Labor as a Reconstruction Problem.—Few subjects raised graver issues or required more attention at the hands of both Congress and the Administration during 1919 than did labor. During the war many differences between capital and labor were from motives of patriotism kept under cover. On the termination of hostilities, however, these came to the surface. The continuance of the high cost of living, and indeed its increase, tended greatly to aggravate the situation. This, in connection with the undoubted fact that many industries were making unusually large profits, greatly strengthened labor in its demands. The United States, moreover, did not wholly escape the wave of radicalism represented by the Bolsheviks in Russia and the syndicalists and socialists in other lands. The extension of Government control over the railroads, telegraph, telephone, and cable systems, shipping, etc., also raised questions as to the right of employees in these industries and of Government employees generally to form unions and engage in strikes for the enforcement of their demands. Although the history of labor during the year belongs to another department of the YEAR BOOK (XV, *Labor and Labor*

Legislation), the fact that so many of the issues raised were of national scope and led to action by the national authorities makes it imperative that the subject should be handled here, at least in relation to the efforts made by the National Government to reach a solution of the problems involved.

The President's Labor Policies.—With conditions as they were, the views and position of the President as to the manner in which the many pressing problems of labor should be met became a matter of prime importance. Prior action of the President, in forcing through the Adamson Act of Sept. 3, 1916, which was deemed to represent an almost complete surrender to the demands of the railroad brotherhoods (*A. Y. B.*, 1916, pp. 20, 548), and the liberality with which labor demands during the war had been met by the several war agencies acting under his authority led the public to believe that the sympathies of the President were largely in favor of labor's contentions. Nevertheless, it came somewhat as a surprise that the President should devote the greater part of his message to Congress of May 20 to this subject. In this message he apparently took the position that there

I. AMERICAN HISTORY

was grave question whether the whole present system of organization of industry did not rest upon a fundamentally defective basis. In taking this position he lent his support, indirectly at least, to that body of opinion that was urging the radical recasting of our social and political institutions. To quote the message:

The question which stands at the front of all others in every country amidst the present great awakening is the question of labor; and perhaps I can speak of it with as great advantage while engrossed in the consideration of interests which affect all countries alike as I could at home and amidst the interests which naturally most affect my thought, because they are the interests of our own people.

By the questions of labor I do not mean the question of efficient industrial production, the question of how labor is to be obtained and made effective in the great process of sustaining populations and winning success amidst commercial and industrial rivalries. I mean that much greater and more vital question, how are the men and women who do the daily labor of the world to obtain progressive improvement in the conditions of their labor, to be made happier, and to be served better by the communities and the industries which their labor sustains and advances? How are they to be given their right advantage as citizens and human beings?

We cannot go any further in our present direction. We have already gone too far. We cannot live our right life as a nation or achieve our proper success as an industrial community if capital and labor are to continue to be antagonistic instead of being partners; if they are to continue to distrust one another and contrive how they can get the better of one another, or what perhaps amounts to the same thing, calculate by what form and degree of coercion they can manage to extort on the one hand work enough to make enterprise profitable, on the other justice and fair treatment enough to make life tolerable. That bad road has turned out a blind alley. It is no thoroughfare to real prosperity. We must find another, leading in another direction and to a very different destination. It must lead not merely to accommodation but also to a genuine coöperation and partnership based upon a real community of interest and participation in control.

This topic the President again referred to in his message of Dec. 2, a very considerable part of which was devoted to the question of the relations between labor and capital. After pointing out the specific action that had been taken to meet particular grievances, he said:

It [Congress] must now help in the difficult task of finding a method that will bring about a general democratization of industry based upon the full recognition

of the right of those who work, in whatever rank, to participate in some organic way in every decision which directly affects their welfare.

It is impossible to determine just what the President meant by these statements. Their implications, however, were of an exceedingly serious character. Coming as they did on top of speeches made in Europe in which the President had in effect appealed to the peoples over, if not against, their constituted Governments, they could but lead many to believe that the President's sympathies were with much of the radical agitation that was the predominant feature of public affairs in almost all countries. This belief was voiced in an extreme manner by Senator Poindexter, who, in the course of a speech delivered at Cambridge, Mass., in July, declared that the President was sympathetic with, if not a supporter of, the red régime in Russia and of the Bolshevik agitation generally.

Had the President not been prostrated by illness at the time of the convocation of the National Industrial Conference in October (see *infra*), it is quite likely that this question of the desirability of effecting a fundamental change in the conduct of industry and the distribution of its rewards would have received marked attention. On the other hand, the prevalence of strikes, actual or threatened, had by this time become so pronounced that there is evidence that the President was changing somewhat in his attitude towards labor and had reached a belief that the latter was threatening the whole social fabric by its excessive and ill-timed demands.

Labor's Legislative Programme.—In this account of the relations of the National Government with labor during the year, it is also a matter of importance to determine precisely the character of the demands which labor was making upon the Government. This is set forth very clearly in a formal report submitted by the American Federation of Labor to the Senate Committee on Education and Labor on Jan. 15. The Federation enumerated the following demands;

(1) To make it a criminal offense for any employer to interfere with or hamper the right of workers to organize into trade

I. AMERICAN HISTORY

unions or to interfere with legitimate activities of trade unions.

(2) To put an immediate end to the exploitation of children under 16 years of age.

(3) To provide that in the event of a Supreme Court declaring a law unconstitutional, either of Congress or of a state, if the people acting either directly or through Congress or a state legislature should reenact the measure, it shall then become the law, without being subject to annulment by any court.

(4) To put public and semi-public utilities either under Government ownership or Government control.

(5) To apply a graduated tax on all usable agricultural lands above the acreage cultivated by the owner, so as to prevent private ownership of very large tracts of usable land, and to prevent as far as possible the extension of the tenant class.

(6) To limit, define, and regulate the powers, privileges, and activities of corporations so that their methods cannot become detrimental to the American people. All corporations organized for profit should be subject to a Federal license.

(7) To amend workmen's-compensation laws so as to make them more adequate. State insurance must supplant employers' liability insurance operated for profit.

(8) To prohibit immigration into the United States for a period of two years after the proclamation of peace.

(9) To provide for a progressive increase in taxes on incomes, inheritances, and upon land values, of such a nature as to render it unprofitable to hold land without putting it to use. Taxation should rest as lightly as possible on constructive enterprise.

(10) To provide for Government exercise of advisory supervision over public education, and, when necessary, maintain adequate public education through subsidies without giving the Government power to hamper development of public education by the states.

(11) To prohibit the operation of private employment agencies for profit.

(12) To provide for a small standing army and voluntary state militia.

(13) To provide for the free transportation of discharged soldiers and sailors to their homes, and the continuance of their monthly salaries for not to exceed 12 months, if employment is not secured within that period.

(14) To project Government development of waterways, including canals, so as to decrease the cost of freight transportation.

(15) To have the Government utilize water power of public waterways and sell power to consumers at rates based upon actual cost.

(16) To invest Government ownership of all wharves and docks connected with public harbors and used for commercial purposes.

(17) To provide Government supervision of the public educational system, the Government to maintain, where necessary, adequate educational facilities in states or communities.

(18) To inaugurate a plan by which the Government may build model homes for workers, and to establish a system of credits by which workers may build their own homes.

New York Harbor Marine Workers Strike.—One of the first labor disturbances of the year requiring the intervention of the National Government was the strike of the six affiliated marine workers' unions of New York harbor inaugurated early in January. These unions formulated a demand for a basic eight-hour day and an increase in wages, and upon these demands being refused, the men quit work. Efforts were made by the Secretary of Labor, the Secretary of War, the Secretary of the Navy, and the Director-General of Railroads, all of whom were vitally interested in having traffic in the harbor resumed, to adjust the difficulty. These having proven futile, the President, then in Paris, was appealed to. He at once cabled requesting the National War Labor Board, of which Wm. H. Taft and Basil M. Manley were joint chairmen, to undertake the settlement of the dispute.

Although the boat owners objected to the National War Labor Board, because, they claimed, Mr. Manley had already prejudged the controversy, the Board under the leadership of Mr. Taft, assumed jurisdiction, and the workers agreed to return to work pending the decision. On Feb. 25, V. Everit Macy, who had been appointed arbitrator, rendered his award. He allowed the claim for a basic eight-hour day but denied that for an increase in wages. This award was thoroughly unsatisfactory to the men, and accordingly, on March 4, they directed a renewal of the strike. On March 7, the strike was settled for the railroad-owned boats, amounting to about 40 per cent. of the traffic, through greater concessions granted by the Railroad Administration, which thus threw over the Macy award. A few days later, the War and Navy Departments agreed to the same conditions as those offered by the Railroad Administration. This action placed the three Government services on the same basis and reduced the controversy to one between the unions and the private operators of tugs,

lighters, and coal and grain vessels. Under these conditions the latter were unable to hold out, and the strike came to an end with the result that the strikers were substantially victorious in the contest. (See also XV, *Labor*.)

Boston Police Strike.—Early in September occurred a strike of the policemen of Boston, which, while local as regards its immediate effect, raised an issue of national importance. This issue was the right of public servants to organize, to ally themselves with other organizations of labor, and to use the weapon of the strike to enforce their claims against the Government. The importance of this strike was further emphasized by the fact that in a large number of other cities the policemen had formed unions and in some cases had affiliated themselves with the American Federation of Labor. The dangers to the public resulting from the organization of public servants and their resort to the strike were vividly manifested in the Boston strike. Almost immediately the city was given over to disorder, and looting of shops took place on a considerable scale.

The President, who was then on his speaking tour on behalf of the League of Nations, at once realized the seriousness of the strike and took occasion in his speech at Helena, Mont., to denounce it in the following terms:

I want to say this, that a strike of the policemen of a great city leaving that city at the mercy of an army of thugs, is a crime against civilization.

In my judgment the obligation of a policeman is as sacred and direct as the obligation of a soldier. He is a public servant, not a private employee, and the whole honor of the community is in his hands. He has no right to prefer any private advantage to the public safety.

I hope that that lesson will be burned in so that it will never again be forgotten, because the pride of America is that it can exercise self-control.

Governor Coolidge of Massachusetts took the matter firmly in hand and as a result of his action the strike was quickly suppressed (see also XV, *Labor*). The result of the strike and of the attitude taken by the President was to make clear that public sentiment was overwhelmingly opposed to the theory that public servants, and especially those having to do with the protection of the public, are justified

in striking for the purpose of enforcing their demands, although it may be conceded that they have a right to organize for the purpose of making known their complaints. (See also XXX, *Education*.)

Steel Workers' Strike.—A third strike of the year that assumed national importance and involved action on the part of the National Government was that of the steel workers which began on Sept. 22 (see also XV, *Labor*). For years past the inability of organized labor, as represented in the American Federation of Labor, to unionize the iron and steel mills of the country has constituted the most conspicuous failure of the labor-union movement. The accession of strength gained by organized labor during the war led it to the conclusion that the time was opportune to fill this gap in its organization. Under the leadership of the Federation a campaign was accordingly inaugurated for the unionizing of all iron and steel workers, the 24 national or international unions affected deciding to act together in this movement.

Early in the summer it was definitely declared by the unions that unless their demands were met, a general strike of all iron and steel mill workers would take place. Although the demands of the men included such points as increase in wages, double payment for overtime, shorter hours, etc., the real point at issue was the unionization of the mills, which carried with it the recognition by the mill owners of the right of their employees to organize, to bargain collectively, and to be represented by representatives of their own choosing whether such representatives were employed in the mills or not. Judge Elbert H. Gary, acting in behalf of the U. S. Steel Corporation and the steel manufacturers generally, declared that these demands by labor would not be met. Although claiming not to be opposed to the principle of the right of labor to organize, he in fact opposed the formation of trade unions by his men and refused to deal with any organization not composed wholly of his own employees. He thus flatly refused even to see or confer with representatives of the unions who requested an interview with him relative to their claims.

I. AMERICAN HISTORY

A strike at this time, when the country was going through a critical period of reconstruction and there was a demand for steel products which under the most favorable conditions could hardly be met, would be, it was felt, little short of disastrous. The gravity of the situation led President Wilson on Aug. 29 to summon Mr. Gompers and other labor leaders to a conference at the White House. This conference, however, was not productive of any result. On Sept. 10 a meeting of the 24 union presidents was held at which Sept. 22 was fixed as the date on which the strike would take place. In reaching this decision they gave to the public a statement which read in part as follows:

The 24 international unions in the steel industry affiliated with the American Federation of Labor, having exhausted every honorable and possible means of securing a conference with the U. S. Steel Corporation for the purpose of discussing the intolerable and brutal conditions under which the men are compelled to work, and having failed in these efforts, have decided by unanimous vote to cease work Monday, Sept. 22.

The representatives of these international unions have for the last four months tried every conceivable means to secure a conference with Judge Gary, representing the U. S. Steel Corporation. A personal letter from President Gompers to Judge Gary was totally ignored. Later on, a committee waited upon Judge Gary in New York and were refused an audience. Subsequently, they were advised through a letter signed by Judge Gary that he would not deal with union labor representatives, which is an absolute denial to his employees of the right to collective bargaining.

The Executive Council of the American Federation of Labor brought the situation to the Chief Executive of this nation, President Wilson, for the purpose of securing his cooperation in arranging a conference. Up until the present time the committee has not been advised that the efforts of the President have been any more successful than the efforts of President Gompers and the committee representing the employees.

This statement was signed by John Fitzpatrick, M. F. Tighe, William Hannon, John M. Purcell, and Wm. Z. Foster, who compose the special committee of five which will put in motion the actual strike call.

After a week's delay Mr. Gary published a reply to the foregoing statement in which he said:

I deem it proper to repeat in a letter what heretofore has been said to you verbally. I entertain no feeling of animosity toward the gentlemen persona

and would not hesitate to meet them as individuals, but I did not and do not consider it proper to confer with them under the circumstances.

The declination was made for two reasons: First, because I did not believe the gentlemen were authorized to speak for large numbers of our employees, whose interests and wishes are of prime importance; secondly, because a conference with these men would have been treated by them as a recognition of the "closed-shop" method of employment. We do not combat labor unions as such. We do not negotiate with labor unions because it would indicate the closing of our shops against non-union labor; and large numbers of our workmen are not members of unions and do not care to be.

In these two communications the issue was definitely drawn.

On the following day, Sept. 18, the National Committee for the Organization of Steel Workers addressed an open letter to the President of the United States setting forth their side of the controversy. In it the history of the controversy was traced step by step, and it closed as follows:

There is one and only one question at issue, and that is the question of a conference. The employees have exhausted every avenue of approach to the Corporation for the purpose of securing a conference, and every avenue has been closed to them. Their last and only hope is to strike, and now the employees declare that they will cease work on next Monday morning until such time as the Corporation will meet their representatives in conference for the purpose of establishing humane and reasonable methods of dealing with the very vital problems which affect their lives, their homes, and their future.

The President having failed in his efforts to secure an adjustment of the difficulty or a postponement of the strike until after his Industrial Conference which had been summoned to convene at Washington on Oct. 6 (see *infra*), the Senate intervened, and by a unanimous vote taken on Sept. 23 adopted a resolution, introduced by Senator Kenyon of Iowa, directing its Committee on Education and Labor to investigate and report the reasons for the strike. This Committee, under the chairmanship of Senator Kenyon, immediately instituted public hearings on the subject. On the conclusion of the hearings the Committee proceeded to Pittsburgh and other steel centers in order to prosecute their inquiries on the spot.

The meeting on Oct. 6 of the Industrial Conference (see *infra*), of which

I. AMERICAN HISTORY

Judge Gary was a member, transferred the controversy in a measure to that body. An attempt was made by Mr. Gompers to have the Conference make provision for the arbitration of the controversy, but it failed through the premature disruption of the Conference. On Nov. 8 the Senate Committee made its report. Its findings and recommendations were summarized by the press as follows:

FINDINGS

(1) The steel strike should have been postponed at the President's request.

(2) The underlying cause of the strike is the determination of the American Federation of Labor to organize the steel industry.

(3) The laborers in the steel industry had a just complaint relative to long hours of service on the part of some of them.

(4) The steel workers had the right to have representatives of their own choosing, present grievances to their employers.

(5) The question of wages is not involved in the controversy.

(6) Behind this strike there is massed a considerable element of I. W. W.'s, anarchists and revolutionists and Russian soviets; some radicals are attempting to use the strike to elevate themselves to power within the ranks of organized labor.

REMEDIES

(1) Creation of a permanent Federal Industrial Commission, somewhat similar to the War Labor Board, to have large powers in mediation, conciliation, pending whose decision strikes should not be declared.

(2) An Americanization law, to provide for effective education and Americanization of illiterate foreigners and native illiterates.

(3) Aid through Federal Government and industries to make industrial workers home owners.

(4) Amendment of naturalization laws to compel aliens to learn to speak the American language and to become naturalized within five years, or be deported.

(5) An effective law dealing with anarchists, revolutionists, and all who would destroy American government.

In general it may be said that the Committee found that Judge Gary was not justified in his attitude of opposition to dealing with representatives of labor of their own choosing. On the other hand, it criticized the steel workers for refusing to meet the request of the President to postpone the strike until his Industrial Conference had convened and had had an opportunity to pass upon the issues involved.

Bituminous Coal Miners' Strike.—Much the most important labor difficulty calling for action by the Nation-

al Government was the general strike of the bituminous coal miners of the United States inaugurated on Nov. 1 (see also XV, *Labor*). Coming on top of the failure to settle the steel strike and the break-up without result of the President's Industrial Conference, it raised the gravest apprehensions in the public mind regarding possible consequences.

The bituminous coal miners, who number over 400,000 are strongly organized, and have succeeded in establishing the principle of collective bargaining in their industry, in 1916 entered into an agreement with the coal operators which was to run until the end of the war but not later than April 1, 1920. Claiming that the war was over within the intent of the contract at least, the United Mine Workers of America at their annual meeting held at Cleveland on Sept. 3, formulated a demand for a revision of the existing contract and directed that if this revision was not agreed upon, the contract would be deemed to have automatically terminated on Nov. 1, on which date the miners would quit work. The most important of the new demands were for a 60 per cent. increase in wages and the adoption of a six-hour work day and a five-day week. In justification of these demands it was pointed out that the miners under existing conditions were not putting in more hours of labor than this during the year, due to the frequency with which the operators shut down the mines. The increase in wages was asked in order that the men might earn as much in the shorter working period as they were earning under the existing system. It was also pointed out later that these represented only the demand of the miners, which were subject to change if the operators would agree to consider a revision of the 1916 contract. This, however, the operators refused to do. The result was that unless an adjustment could be reached before Nov. 1, the country was threatened with a practical cessation of the mining of bituminous coal.

The gravity of the situation thus brought about was at once seen by the Government. If the strike continued for any length of time, all transportation and the greater part of the indus-

tries of the country would be affected. The Cabinet immediately met to consider the situation and directed Secretary Wilson to seek to bring the two parties together. On his failure to do so, the President, on Oct. 25, from his sickbed issued an earnest appeal to the miners to rescind their strike order. After appealing to their patriotism, he let it be known that if the strike was persisted in, the Government would act with the greatest energy to protect the public interest. In the course of his appeal he said:

From whatever angle the subject may be viewed, it is apparent that such a strike in such circumstances would be the most far-reaching plan ever presented in this country to limit the facilities of production and distribution of a necessity of life and thus indirectly to restrict the production and distribution of all the necessities of life. A strike under these circumstances is not only unjustifiable, it is unlawful. . . .

It is time for plain speaking. These matters with which we now deal touch not only the welfare of a class, but vitally concern the well-being, the comfort, and the very life of all the people. I feel it my duty in the public interest to declare that any attempt to carry out the purpose of this strike and thus to paralyze the industry of the country with the consequent suffering and distress of all our people, must be considered a grave moral and legal wrong against the Government and the people of the United States. I can do nothing less than to say that the law will be enforced, and means will be found to protect the interests of the nation in any emergency that may arise out of this unhappy business.

This appeal of the President failed to move the miners, their leaders claiming that they had no authority to suspend the strike order. Thereupon the Attorney-General took steps to prevent by legal action if possible the putting into effect of the strike order. On Oct. 31 a temporary injunction was secured from Judge Albert B. Anderson of the U. S. District Court at Indianapolis, restraining the miners' officers and leaders from sending out any further strike order and restraining the officers of the United Mine Workers of America from disbursing any union funds for strike benefits. Dr. Harry A. Garfield was recalled to Washington, and the Fuel Administration, under his direction, was in effect revived. An executive order was issued fixing maximum prices for bituminous coal in order to

prevent mine operators from taking advantage of the situation to raise prices unduly, and the Railroad Administration was authorized to seize coal in transit regardless of consignee whenever necessary to meet the needs of the railroads.

Grave apprehension existed in respect to the extent to which the coal miners would have the support of organized labor. The American Federation of Labor and the railroad brotherhoods announced that the coal miners had their support. In an interview with Attorney-General Palmer the officers of these organizations protested against the injunction, claiming that this act constituted a violation of the right of workingmen to strike. Authority for the issuance of the injunction was to be found in the provisions of the Food and Fuel Control Act, still in force, which made it a penal offense for men to conspire for or take action that would lead to interference with the production of coal during the period of the war. The temporary injunction had no effect except to make known the determination of the Government to use all of its powers to prevent a cessation of labor in the coal mines. On Nov. 1 the miners to the number of 400,000 or more quit work. On Nov. 8, further efforts at conciliation by Secretary Wilson, who had himself been a coal miner, having proved fruitless, the Government secured from Judge Anderson a further injunction ordering the officials of the miners' union to withdraw the strike order. On the following day, Nov. 9, the Executive Council of the American Federation of Labor issued a formal statement which contained the following paragraphs:

The autocratic action of our Government in these proceedings is of such a nature that it staggers the human mind. In a free country to conceive of a Government applying for and obtaining a restraining order prohibiting the officials of a labor organization from contributing their own money for the purpose of procuring food for women and children that might be starving is something that, when known, will shock the sensibilities of man and will cause resentment. . . .

The Lever Act provides its own penalties for violators of its provisions. The injunction issued in this case has for its purpose not a trial by court and a jury, but an order of the court predicated upon

I. AMERICAN HISTORY

the assumption that the law might be violated and by which the defendants may be brought before the court for contempt and without any trial by jury.

We declare that the proceedings in this case are unwarranted, as they are unparalleled in the history of our country, and we declare that it is an injustice which not only the workers but all liberty-loving Americans will repudiate and demand redress. The citizenship of our country cannot afford to permit the establishment or maintenance of a principle which strikes at the very foundation of justice and freedom. To restore the confidence in the institutions of our country and the respect due the courts, this injunction should be withdrawn and the records cleansed from so outrageous a proceeding.

By all the facts in the case the miners' strike is justified. We indorse it. We are convinced of the justice of the miners' cause. We pledge the miners the full support of the American Federation of Labor and appeal to the workers and the citizenship of our country to give like indorsement and aid to the men engaged in this momentous struggle.

Notwithstanding the strong feeling of organized labor in the matter, the coal miners decided to obey the injunction. This decision was reached at a meeting held at Indianapolis on Nov. 10, and on Nov. 11 a formal order to the men cancelling the strike order was issued. In commenting upon this order Mr. Lewis, president of the miners' union, said: "We will comply with the mandate of the Court. We do it under protest. We are Americans. We cannot fight our Government. That is all." This action on the part of the miners had the effect of gaining a certain amount of sympathy of the public, which up to that time had been generally adverse to their position.

Secretary of Labor Wilson immediately took steps to bring the parties to the dispute together with a view to reaching an acceptable agreement regarding labor conditions in the mines. In the meantime little or no attention apparently was paid by the miners to the order withdrawing the strike order. They evidently appreciated that it had been issued by their leaders under duress and declined to return to work. The strike, therefore, continued in full force.

A conference convened by Secretary Wilson assembled in Washington on Nov. 14. The Government was represented by the Secretary of Labor, Fuel Administrator Garfield, Attorney-General Palmer, and the Director-General of Railroads, Walker D. Hines. The

miners were represented chiefly by John L. Lewis, acting president of the United Mine Workers of America. In the course of this conference it developed that the Secretary of Labor and Mr. Garfield had different views with regard to the terms that should be offered the miners. Secretary Wilson announced that he advocated the grant of an increase of wages of 31.61 per cent. as being the increase necessary to offset the increase in the cost of living. Dr. Garfield at once declared that in his opinion this increase was excessive. His proposal was that the increase should be 14 per cent. only, but that it should be definitely understood that the coal operators should not be allowed to make any increase in the price of coal to compensate for this increase in wages. This difference of opinion on the part of two representatives of the Government threw the question into the hands of the Cabinet, and when the Cabinet failed to reach an adjustment of the controversy, it became necessary to refer the matter directly to the President. The latter on Dec. 9 made public a decision which was in the nature of a compromise. It proposed the acceptance of the Garfield plan for an immediate increase in wages of 14 per cent. and the constitution of a commission to consider what further concessions, if any, should be granted to the miners. This commission, it was stated, should be composed of three persons, one representing the miners, one the coal operators, and the third the general public. On Dec. 10 a conference of all district representatives of the United Mine Workers of America adopted the proposal and instructed all miners to return to work. These instructions were generally obeyed.

The National Industrial Conference.—As the evidences of increasing social unrest became more and more marked, with strikes called or threatened in the basic industries of transportation, coal mining, the loading and unloading of vessels, and the manufacture of iron and steel products, and with demands being put forth by certain elements of labor which, to say the least, were of a radical and far-reaching character, President Wilson early in September announced his in-

tention to convoke at Washington representatives of capital, labor, and the public to meet in conference for the purpose, if possible, of agreeing upon a programme of industrial and social readjustment that would be acceptable to all parties. In taking this action the President followed the example of Great Britain in seeking to meet a somewhat similar situation (see III, *The United Kingdom*).

In pursuance of this call the National Industrial Conference convened at Washington on Oct. 6 (see also XV, *Labor*). The original plan had been that the Conference should be composed of 45 members, one-third of whom should represent each of the three groups of employers, labor, and the public. Later this number was somewhat increased. Prominent among the men representing the public were Bernard M. Baruch, former chairman of the War Industries Board; Robert S. Brookings, former chairman of the Price-Fixing Committee of that organization; John D. Rockefeller, Jr.; Judge Elbert H. Gary of the U. S. Steel Corporation; Dr. Charles W. Eliot, president emeritus of Harvard University; and Charles Edward Russell and John Spargo, two men long prominent as representatives of socialism. The Chamber of Commerce of the United States was represented by five delegates; farmers organizations by three; the Investment Bankers Association of America by two; the National Industrial Conference Board by seven. These together constituted the employers' group. The labor group was composed of 13 delegates representing the American Federation of Labor and four delegates representing the railroad brotherhoods. Prominent among the employers' representatives were Harry A. Wheeler, former president of the Chamber of Commerce of the United States, and Homer L. Ferguson, president of that organization. Samuel Gompers and Frank Morrison, president and secretary, respectively, of the American Federation of Labor, headed the labor group.

Due to the illness of the President, the meeting was called to order by Secretary of Labor Wilson, and Secretary Lane of the Department of the Interior was made permanent chairman. At the outset the important decisions

were made that all resolutions introduced should be referred to a committee for consideration before being brought forward for action; that the members should constitute themselves into the three groups of representatives of employers, labor, and the public; and that no resolution should be adopted that did not receive the affirmative vote of all three groups, a majority within each group deciding its vote. These decisions meant that all measures had first to receive consideration by the three groups sitting separately before being taken up for action by the Conference in plenary session, and that action must be unanimous in the sense of receiving a majority vote of each of the three groups voting separately. The three groups organized with Mr. Wheeler, Mr. Gompers, and Mr. Baruch as their respective chairmen and spokesmen.

A flood of resolutions bearing upon a variety of subjects were immediately introduced. Among these only two, that providing for the arbitration of the steel strike then in progress and that seeking to declare the opinion of the Conference in respect to the right of labor to form unions, to bargain collectively, and to be represented by representatives of their own choosing, were the only ones to receive any amount of attention at the hands of the Conference. These two matters were intimately connected, since the points involved in the second constituted the really vital issues at stake in the steel strike.

Attention was finally concentrated almost exclusively upon efforts to draft a resolution covering the three points of the second resolution noted above that would be acceptable to all three groups. Each group brought forward one or more resolutions of this character, but none succeeded in receiving the endorsement of all three groups. The matter came to a final issue on a revised resolution brought forward by Mr. Gompers on behalf of the labor group, which read as follows:

The right of wage earners to organize without discrimination, to bargain collectively, to be represented by representatives of their own choosing in negotiations and adjustments with employers in respect to wages, hours of labor and relations and conditions of employment is recognized.

I. AMERICAN HISTORY

Mr. Gompers declared that unless this resolution were accepted, labor would withdraw from the Conference on the ground that further attempts to reach an agreement would be futile. On the final vote on Oct. 23 the resolution was endorsed by the groups representing labor and the public but was rejected by the employers' group. Mr. Gompers and the labor group then withdrew from the Conference. Following this the public group met and agreed upon a report to the President, the most important feature of which was the recommendation that the Conference should be deemed to be terminated as no longer being able to perform the function for which it had been convened, and that the President should appoint a new body for the same purpose which should have a smaller membership and conduct its business as a single body instead of through a group organization.

The Conference thus not only failed of its purpose, but if anything left the situation more acute, because the issue was sharply drawn between labor and capital in respect to the fundamental principle upon which or through which their relations should be established. This issue, however, was not clearly revealed in the resolution upon which the break occurred. The objection of the employers' group to the Gompers' resolution was against the implications which it believed to be contained in it rather than to what it declared directly. In a word, the position of labor as represented by the American Federation of Labor and the railroad brotherhoods was that labor should be organized in unions along trade lines and should conduct its negotiations with employers through representatives of such organizations. The position of the employers as represented by their group, on the other hand, was that the organization of labor should take place along shop lines, so that each employer would deal with his own employees and be under no obligation to recognize or enter into relations with outside organizations. It need scarcely be said that this difference of opinion between the two groups was a vital one. An organization of labor along the lines advocated by the employers' group would at once destroy trade unions as at present con-

stituted and heading up in the American Federation of Labor, and would reduce collective bargaining to negotiations between individual employers and their employees instead of bargaining in respect to conditions in an entire trade or district. It was on this issue that the split took place.

The President's Industrial Conference.—In pursuance of the recommendation made by the public group in the National conference, the President on Nov. 20 announced the summoning of a second industrial conference to convene on Dec. 1. Following further the recommendation of that group, he stated that the conference would consist of a small body of men representing industry as a whole rather than the three groups of interests as in the first Conference. The following were selected as members:

Wm. B. Wilson, Secretary of Labor; Thomas W. Gregory, former Attorney-General; George W. Wickersham, former Attorney-General; Herbert C. Hoover, former Food Administrator; Oscar S. Straus, former Secretary of Commerce; Henry M. Robinson, Pasadena, Cal.; Prof. Frank W. Taussig, former chairman of the Tariff Commission; Samuel W. McCall, former Governor of Massachusetts; Martin H. Glynn, former Governor of New York; Henry C. Stuart, former Governor of Virginia; Dr. W. C. Thompson, president of Ohio State University; Richard Hooker, publisher of the *Springfield Republican*; George T. Slade, formerly vice-president of Northern Pacific Railroad, St. Paul, Minn.; Julius Rosenwald, president of Sears, Roebuck & Co., Chicago; Owen D. Young, lawyer, New York City; H. J. Waters, president of Kansas Agricultural College, Manhattan, Kan.; Stanley King, lawyer and manufacturer, Boston.

In his letter of invitation to these men the President said:

Guided by the experience of the last Conference, I have thought it advisable that in this new body there should be no recognition of distinctive groups, but that all of the new representatives should have concern that our industries may be conducted with such regard for justice and fair dealing that the workman will feel himself induced to put forth his best efforts, that the employer will have an encouraging profit, and that the public will not suffer at the hands of either class. It is my hope that this conference may lay the foundation for the development of standards and machinery within our industries by which these results may be attained.

It is not expected that you will deal directly with any condition which exists today, but that you may be fortunate enough to find such ways as will avoid the repetition of these deplorable conditions.

I. AMERICAN HISTORY

It is important to note that this conference was thus instructed not to seek to adjust any existing labor difficulties, but rather to formulate if possible the broad principles that should govern in seeking to put the relations between the several industrial interests upon a sound and equitable basis. The conference convened on Dec. 1 and took as its official title the "President's Industrial Conference." Secretary of Labor Wilson was made permanent chairman, Herbert C. Hoover permanent vice-chairman, and Stanley King temporary secretary and official spokesman. Later Prof. Henry R. Seager of Columbia University was made permanent executive secretary. The Conference decided to transact its business at the start at least in secret session. No official announcement of its work had been given up to the end of the year.

General Conference of Labor Organizations.—Following the failure of the National Industrial Conference to reach any decisions satisfactory to labor, the American Federation of Labor in conjunction with the four railroad brotherhoods on Oct. 29 issued a call for a general conference in Washington on Dec. 13 of the officials of the 112 national and international labor unions affiliated with the Federation and the four railroad brotherhoods, to consider the general policies to be adopted by labor in seeking to promote its interests and in respect to pending matters directly affecting labor. An effort was also made to induce farmers' organizations to send delegates, in order that a united effort might be made by these two classes to secure action in which labor, as distinguished from employers, was interested; the farmers' organizations, however, very generally refused to be represented.

This convention adopted a long and carefully worded set of resolutions setting forth the fundamental principles for which labor was contending and the attitude of labor as represented by these organizations towards certain pending labor disputes and measures in Congress. Among the most important of the resolutions thus adopted was one denouncing in unmeasured terms radicalism as represented by Bolshevism and I. W. W.'ism, which read as follows:

Whereas, The American Federation of Labor is an American institution believing in American principles and ideas; and

Whereas, An attempt is being made to inject the spirit of Bolshevism and I. W. W.'ism into the affairs of the American Federation of Labor; and

Whereas, The American Federation of Labor is opposed to Bolshevism, I. W. W.'ism, and the irresponsible leadership that encourages such a policy; therefore, be it

Resolved, That this conference of representatives of trades unions affiliated with the A. F. of L. and other organizations associated in this conference repudiate and condemn the policy of Bolshevism and I. W. W.'ism as being destructive to American ideals and impracticable in application; be it further

Resolved, That this conference reiterate the action of the conventions of the American Federation of Labor in the advocacy of the principles of conciliation and voluntary arbitration and collective bargaining.

Other resolutions endorsed the steel strike and the strike of the coal miners; denounced the anti-strike provisions of the Cummins Railroad bill (see *infra*); denounced strongly the use of injunctions in labor disputes; advocated the retention by the Government of the railroads for a further period of at least two years after Jan. 1, 1920, "in order that a thorough test may be made of governmental operation under normal conditions," and urged the ratification of the Peace Treaty.

TRANSPORTATION AND COMMUNICATION

The Administration and Railroad Policy.—The signing of the armistice on Nov. 11, 1918, immediately raised the question of the continued control and operation of the railroads by the Government, or, if it was decided to return them to their owners, the conditions under which such return should be made. It does not appear that the Administration as a whole

worked out any definite policy in respect to these matters. The three authorities directly concerned, the President, the Railroad Administration, and the Interstate Commerce Commission, each apparently had its own ideas regarding what should be done to meet the situation.

The President's policy, if he may be said to have had one, was that of turn-

ing over the whole matter to Congress for its decision. Thus, in his message of Dec. 2, 1918, he frankly stated that he himself had no solution of the problem to offer, although there was urgent need of settlement in fairness both to the public and to the owners of the roads.

He did say, however, that:

The one conclusion that I am ready to state with confidence is that it would be a disservice alike to the country and to the owners of the railroads to return to the old conditions unmodified. Those are conditions of restraint without development. There is nothing affirmative or helpful about them. What the country chiefly needs is that all its means of transportation should be developed, its railways, its waterways, its highways and its country-side roads. Some new element of policy, therefore, is absolutely necessary—necessary for the service of the public, necessary for the release of credit to those who are administering the railways, necessary for the protection of their security holders. The old policy may be changed much or little but surely it cannot wisely be left as it was.

This statement, negative as it was in respect to the making of specific recommendations for action, had at least the merit of letting it be known that the President was not prepared to advocate the permanent nationalization of the railroads, and that in his opinion the old policy of restraint and attempted enforcement of competition between roads should be abandoned in favor of one which sought to knit together the transportation agencies of the country in one harmonious system.

A few days later the Interstate Commerce Commission made public its annual report for 1918, in which it thus set forth its ideas regarding the policy to be pursued in respect to the roads:

While we do not deem the present conditions and moment opportune in which to recommend concrete proposals for legislation, we may indicate certain lines of inquiry which must be pursued in order to reach sound conclusions.

Whatever line of policy is determined upon, the fundamental aim or purpose should be to secure transportation systems that will be adequate for the nation's needs even in time of national stress or peril and that will furnish to the public safe, adequate, and efficient transportation at the lowest cost consistent with that service. To this end there should be provision for (1) the prompt merger without friction of all the carriers' lines, facilities, and organizations into a continental and unified system in time of stress or emergency; (2) merger within proper limits of

the carriers' lines and facilities in such part and to such extent as may be necessary in the general public interest to meet the reasonable demands of our domestic and foreign commerce; (3) limitation of railway construction to the necessities and convenience of the Government and of the public, and assuring construction to the point of these limitations; and (4) development and encouragement of inland waterways and coördination of rail and water transportation systems.

Among the plans which doubtless will be proposed are the following: (1) continuance of the present plan of Federal control; (2) public ownership of carrier property, with private operation under regulation; (3) private operation under regulation, with Governmental guarantees; (4) resumption of private control and management under regulation; and (5) public ownership and operation. Additional plans and modifications or combinations of those enumerated might be listed.

If the policy of private ownership and operation under regulation is continued, the following subjects will require legislative consideration: (1) revision of limitations upon united or cooperative activities among common carriers by rail or by water; (2) emancipation of railway operation from financial dictation; (3) regulation of issues of securities; (4) establishment of a relationship between Federal and state authority which will eliminate the twilight zone of jurisdiction and under which a harmonious rate structure and adequate service can be secured, state and interstate; (5) restrictions governing the treatment of competitive as compared with noncompetitive traffic; (6) the most efficient utilization of equipment and provision for distributing the burden of furnishing equipment on an equitable basis among the respective carriers; (7) a more liberal use of terminal facilities in the interest of free movement of commerce; and (8) limitations within which common-carrier facilities and services may be furnished by shippers or receivers of freight.

Should the policy of public ownership and operation be adopted, there must be considered: (1) the just and fair price at which, and the terms under which, carrier properties are to be acquired; (2) prohibiting the operation of railways as a fiscal contrivance, insuring their administration in the interest of the convenience and commerce of the people, requiring that they shall be self-supporting, and that their rates shall be properly related to the ascertained cost of service, and retaining and extending the economies and advantages of large-scale production in transportation; (3) responsibility and relationship of the Railroad Administration to Congress and other Federal authorities and to the states; (4) guarding against the intrusion of party politics into railway management; (5) a status for railway officers and employees under which the railway service will attract and retain the best talent; and (6) maintenance of a tribunal for the determination of controversies which will inevitably arise even under public operation.

This report has been quoted at some length since it states in an exception-

ally clear and concise manner the elements involved in the problem and the considerations to be borne in mind in seeking a solution of it.

At about the same time, on Dec. 11, 1918, Wm. G. McAdoo, the Director-General of Railroads, submitted to the chairman of the Senate Finance Committee a formal statement in which he urged that the period of Government control be extended from the 21 months after the ratification of peace provided by the existing law to five years, that is, until January, 1924. In support of this proposal he said:

This extension would take the railroad question out of politics for a reasonable period. It would give composure to railroad officers and employees. It would admit of the preparation and carrying out of a comprehensive programme of improvements of the railroads and their terminal facilities which would immensely increase the efficiency of the transport machine. It would put back of the railroads the credit of the United States during the five-year period, so that the financing of these improvements could be successfully carried out. It would offer the necessary opportunity under proper conditions to test the value of unified control, and the experience thus gained would of itself indicate the permanent solution of the railroad problem.

The American people have a right to this test. They should not be denied it. It is to their interest that it should be done. In my opinion, it is the only practicable and reasonable method of determining the right solution of this grave economic problem.

Later, in testimony before the Senate Finance Committee, he strongly urged that whatever the policy adopted, many of the reforms carried through during the period of Government control should be preserved and extended. These reforms, he stated, included:

Maintenance of the permit system so as to control the traffic at its source; maintenance of heavy loads for cars; pooling of repair shops; elimination of circuitous routes; unification of terminals; maintenance of the sailing-day plan; consolidation of ticket offices; utilization of universal mileage tickets; standardization of equipment; maintenance of the uniform freight classification introduced by the Railroad Administration; maintenance of common timetables between important points; maintenance of high demurrage rates and uniform rules; establishment of through-way-bill freight from point of origin to destination; elimination of the old practice of paying in mileage or *per diem* rental for the use of freight or passenger cars of one carrier by another; simplification of the old practice of apportioning

inter-line passenger revenue; and utilization of water routes for the relief of crowded rail lines.

On Jan. 10 Walker D. Hines, Assistant Director-General of Railroads, was appointed Director-General to succeed Mr. McAdoo, whose resignation had been previously announced. The new Director-General immediately announced that he favored the five-year extension of Government control that had been urged by his predecessor. This plan therefore, may be said to have been the official policy of the Railroad Administration.

Private Plans of Railroad Control.—In the foregoing have been given the views of the three officers or agencies of the Government having direct responsibility for the formulation of policies in respect to the treatment of the railroads. They were quickly supplemented by expressions of opinion on the part of outside interests who were vitally concerned with the action to be taken. On Jan. 5 was held a session of the Association of Railway Executives, representing over 92 per cent. of the railway mileage of the country, at which agreement was reached regarding the policy which, in the opinion of that body, should be adopted by the Government, and a committee, of which T. DeWitt Cuyler of the Pennsylvania Railroad was chairman, was appointed to present this plan to the Senate Committee on Interstate Commerce, of which Senator Cummins of Iowa was chairman. This plan called for:

Ownership and operation of all railroads by private corporations under rigid Federal supervision;

Federal incorporation of all interstate carriers;

Consolidation of existing lines into strong competitive systems wherever practicable and in the public interest;

Joint use of equipment and terminals where the public interest would be served thereby;

Exclusive control of security issues by the National Government;

Exclusive regulation of rates, intrastate as well as interstate, by the Interstate Commerce Commission;

Enactment of a statutory rule prescribing that the level of rates should be such as would provide a revenue sufficient to pay wages and other expenses of operation, a fair return on the value of the property used, and maintain the credit of the roads at a level that would attract new capital sufficient to meet necessary additional capital outlays;

Maintenance of the Interstate Commerce Commission with its existing rate regulation, accounting, and valuation functions; and

Creation of a Federal Transportation Board composed of three commissioners appointed by the President with the duties of exercising a general oversight of the roads in the interests of the public; of performing all the duties now performed by the Interstate Commerce Commission, except those of rate regulation, accounting, and valuation; and of certifying to the Interstate Commerce Commission the amount of revenue needed by the roads to enable them properly to perform their duties and distribute to their owners a fair return on the value of the property.

The interests of security holders are evidently not identical with those of the railroad executives. To protect their interests investors in railway securities formed an organization known as the National Association of Owners of Railroad Securities, of which S. Davis Warfield was made president. This Association formulated a plan of railroad regulation which it laid before the Senate Committee on Interstate Commerce on Jan. 31. This plan followed that of the railway executives in that it called for the return of the roads to their owners and their operation under rigid Federal control. Its most distinctive feature was that calling for a guarantee of rates sufficient to pay investors six per cent. interest on their investments. It thus called for the enactment by Congress of a statutory rule making it obligatory upon the Interstate Commerce Commission to fix rates at such a level as would enable the payment of at least six per cent. on the "aggregate property investment account" of the roads grouped in three classification districts, each road to receive as much of the six per cent. as its efficiency operating under competitive conditions would permit, all excess over that amount earned by each road to be distributed, one-third to the road, one-third to railroad labor, and one-third to the public.

Still another plan was submitted to the committee by an organization known as the Citizens' National Railroads League, of which Nathan L. Amster was president. This plan, known as the Amster plan, called for the consolidation of all railroad companies into a single corporation to be known as the National Railway Corporation, with a board of 11 directors,

one representing the Interstate Commerce Commission, one the state railroad commissions, two the employees, two commerce and industry, two farmers, and three railway stockholders. Rates were to be initiated by this Corporation but were to be passed upon by the Interstate Commerce Commission. These rates were to be sufficient to pay a guaranteed return on capital invested.

A fifth plan was that elaborated by the National Transportation Conference organized under the auspices of the U. S. Chamber of Commerce. This plan followed fairly closely that of the railroad executives. It, however, opposed Federal incorporation of railroad companies and left the Interstate Commerce Commission as the only organ of the Government to exercise the powers of Federal control over the roads.

All of these proposals held many of their most fundamental features in common. All, for example, opposed Government ownership and operation even for the fixed term set by Mr. McAdoo and called for the return of the roads to private control at the earliest practicable date. All provided for the exercise of more rigid Federal supervision and control of the roads than was provided for by existing law. All called for the exercise by the Federal Government of the right to regulate future issues of securities, advocated action looking to the merging of the many existing roads into a relatively few operating companies, and sought in other ways to preserve the advantages of unified action by the roads.

The Plumb Plan.—This was the situation when suddenly the railroad brotherhoods, acting through their general counsel, Glenn E. Plumb, brought forward a proposal of a radically different character. This proposal, known popularly as the "Plumb plan," provided not only for permanent Government ownership but for the operation of the roads by the railway employees themselves. It called for the purchase of the roads by the Government and the retirement of all outstanding security issues, the money for the purchase of the roads to be obtained by the Government through the sale of its own obliga-

tions. It further provided that, the Government having acquired the property, its operation should be entrusted to a corporation to be known as the National Railways Operating Corporation, the membership of which would consist of all official and classified railway employees. The actual conduct of affairs would be vested in a board of 15 directors, five elected by the classified employees, five elected by the official employees, and five appointed by the President of the United States. Under this plan the Corporation would in effect lease the roads from the Government under an agreement that any deficit resulting from operation would be met by the United States Government and any surplus resulting after meeting the cost of operation, namely, operating charges and the payment to the Government of a rental of five per cent. of the value of the roads, as officially determined, would be distributed half to the employees and half to the Government. Rates would be initiated by the Corporation and passed upon by the Interstate Commerce Commission. The wages of employees would be determined by the board of directors, and all disputes between officials and employees would be adjusted by boards composed of five representatives of operating officials and five representatives of employees, an appeal lying to the board of directors in the case of a tie vote.

This plan, coming from this source and having this character, at once attracted great public attention. It was at once a proposal for Government ownership and a scheme of operation embodying what may be termed the soviet principle, in that the operation of the enterprise was to be undertaken by the employees. The reaction of the public against this plan was immediate and pronounced. Not a little bitterness was caused by the threat, direct or implied, that members of Congress opposing the plan would be opposed at the polls by labor. There can be no doubt about the revolutionary character of the proposal. It was frankly avowed by the brotherhoods, in a statement issued to the public on Aug. 2, to be one for the democratization of industry, and in support of this the declaration of the President

in his message of May 20, that steps must be taken in this direction, was quoted. The statement was signed by the acting head of the Railroad Employees' Department of the American Federation of Labor and thus in a measure committed all labor as represented by that organization to the measure. It was followed up by the announcement that an organization known as the Plumb Plan League had been effected in order to promote the plan and if necessary make it a political issue at the next election. Notwithstanding this, advocacy of the measure slackened as it became apparent that public sentiment was opposed to it. Although the plan was not formally dropped, it was not pushed during the latter part of the year while the actual work of planning legislation in Congress was under way.

Pending Legislation.—Bills embodying each of these several plans were introduced in Congress, and the House and Senate began concurrent consideration of them. On Oct. 23 the Senate Committee on Interstate Commerce, of which Senator Cummins of Iowa is chairman, reported out its conclusions in the form of a bill known popularly as the Cummins bill. This bill after a long debate was passed by the Senate on Dec. 20, the day on which Congress adjourned for the Christmas holidays. In the meantime, the House Committee on Interstate and Foreign Commerce, of which Mr. Esch of Wisconsin was chairman, had, on Nov. 10, reported a bill, known as the Esch bill, which on Nov. 17 passed the House and was sent to the Senate. The result of this independent action on the part of the two houses was that the work of framing a definitive act devolved upon a conference committee. This committee sat during the Christmas recess so that the matter might receive prompt attention when Congress reconvened in the first week of January.

These two bills, though having certain features in common, differed radically from each other in respect to most of the features of the problem to be solved. In the debate that took place on the bills during their passage through the Senate and House the features receiving the most attention were those dealing with labor. Or-

ganized labor succeeded in having the House bill amended on the floor so as to conform largely to its wishes. A provision of the Senate bill which prohibited strikes by railroad labor was bitterly denounced by organized labor.

The Senate and House conferees reported a compromise bill on Feb. 18, 1920, which passed the House on Feb. 21 by a vote of 250 to 150 and the Senate on Feb. 23 by a vote of 47 to 17, notwithstanding vigorous protests of the railroad brotherhoods. President Wilson signed the bill on Feb. 28, and under its terms the roads reverted to private control on March 1. The main points of the measure as agreed upon are (as summarized by the *Commercial and Financial Chronicle*):

Compulsory submission of labor disputes to a permanent Federal board appointed by the President and composed of nine members equally divided between the employees, employers and the public. No provision is made, however, for enforcing the board's decision.

Adjustment of rates by the Interstate Commerce Commission so as to yield to carriers for the two years from March 1, 1920, a return of 5½ per cent. upon the aggregate value of their property, with permission to the Interstate Commerce Commission at its discretion to add another half of one per cent. for improvements.

Distribution of half of the net railway operating income in excess of six per cent. of the property value, equally between the carriers' reserve fund and the Federal railroad contingent fund, which will be administered by the commission for the assistance of weaker roads.

Government guarantee to railroads against a deficit during the first six months after the roads are turned back.

Permissive consolidation of railroads in accordance with a general consolidation plan to be prepared by the Interstate Commerce Commission.

Appropriation of \$300,000,000 to be used as a revolving fund from which to make loans to carriers and pay claims growing out of Federal control. Unexpended funds now in the Railroad Administration's hands are also reappropriated for that purpose.

As finally agreed upon, the labor section provides that "it shall be the duty of all carriers and their officers, employees and agents, to exert every reasonable effort and adopt every available means to avoid any interruption to the operation of any carrier growing out of any dispute between the carrier and the employees or subordinate officials." Such dispute, the bill provides, should, if possible, be decided by railway boards of labor adjustment established by agreement between the carriers concerned and the employees. No provision is provided, however, for their organization.

The bill directs the railway board of labor appeals which would be appointed by the President with the Senate's approval, and which would have central offices in Chicago, to consider and decide cases either certified to it by the lower boards or cases which the latter failed to hear. In addition the Federal Board can, "upon the appeal board's own motion, if it is of the opinion that the dispute is likely substantially to interrupt commerce," investigate conditions surrounding the dispute and make a decision. Such decision, however, under the bill must be concurred in by at least five members, one of whom must be of the public group.

The rate-making section of the bill stipulates that the Interstate Commerce Commission in establishing rates which shall yield a return equal to 5½ per cent. of the aggregate value of the carriers' property "shall give due consideration, among other things, to the transportation needs of the country and the necessity (under honest, efficient and economical management of existing transportation facilities) of enlarging such facilities in order to provide the people of the United States with adequate transportation."

The section further provides "that during the two years beginning March 1, 1920, the Commission shall take as such fair return a sum equal to 5½ per cent. of such aggregate value, but may, in its discretion, add thereto a sum not exceeding one-half of one per cent. of such aggregate value to make provision in whole or in part for improvements, betterments or equipment, which, according to the accounting system prescribed by the Commission, are chargeable to capital account."

Determination of the aggregate value of the property of the carrier for rate making purposes is left to the Commission with the provision that it shall give to the property investment account of the carriers only that consideration which it is entitled to under the law in establishing values for rate making purposes. When any carrier receives for any year a net railway operating income in excess of six per cent. of the value of its property, one-half of such excess goes to the carriers' reserve fund while the rest goes to the Federal railroad contingent fund, which is to be used by the Commission in making loans to railroads or for the purchase of transportation, equipment or facilities and leasing the same to carriers.

In order to enable the Commission to administer more efficiently Federal regulation, the bill, as agreed upon, greatly widens the Commission's powers and increases the membership from nine to 11 commissioners, with an increase from \$10,000 to \$12,000 in annual salary of the members.

The Interstate Commerce Commission's increased powers include the following:

Supervision over the issuance of railroad securities, the Commission's approval being required before railroads can issue stock or bonds.

Establishment of minimum rail rates,

the Commission up to this time having had only power to establish maximum rates. This power will enable it to prevent a carrier from conducting "cut-throat" competition.

Authority to make such just and reasonable direction with respect to car service in times of emergency as will best promote the service in the public's interest.

Authority to compel the joint or common use of terminals; to give directions for preference or priority in transportation, embargoes, or movement of traffic under permits.

Approval of new construction and of abandonment of railroads.

Complete control over railroad operations throughout the United States in "case of war or threatened war," the bill provides, would be centered in the commission, which would have powers similar to those now exercised by the Railroad Administration.

Railroad Administration Finances.

—The year 1918 closed with a deficit of \$202,135,602 as the result of the Government's operation of the roads. During the year the roads had further been granted advances with which to make betterments, secure equipment, and meet other necessary capital outlays to the amount of \$689,034,759. This deficit and these advances, in so far as they were not met by repayments and excess receipts of certain roads, constituted a charge against the Revolving Fund of \$500,000,000 given to the Railroad Administration as a working capital fund.

In view of the fact that a continued deficit in operation was anticipated during 1919 and that additional advances would have to be made to the roads with which to finance their capital outlays, it became evident that a large addition to the Revolving Fund was imperatively needed. On Jan. 20 accordingly the Director-General requested the appropriation of \$750,000,000 as an addition to the Revolving Fund. An item calling for this sum was included in the third General Deficiency Bill, but this bill failed through the filibuster which developed in the Senate on the closing days of the session which came to an end March 4. The failure of this bill and the decision of the President not to call Congress together immediately in special session left the Railroad Administration in a very critical condition. The Director-General, however, managed to worry along through resort to the War

Finance Corporation, which loaned \$50,000,000 to the Railroad Administration, the curtailment of capital expenditures, and other devices.

Upon Congress convening in special session on May 20, Mr. Hines renewed his request for additional funds. Inasmuch as the operating deficit for the first four months of the year had been greater than anticipated, amounting to \$250,000,000, he had to raise his request to \$1,200,000,000. In his letter requesting this amount he said:

If the amount here requested shall be appropriated, the total appropriations for the Railroad Administration will have been \$1,700,000,000. Of this amount \$1,214,000,000 will represent amounts which should be returned to the Government, \$425,000,000 thereof being temporarily tied up in working capital and \$775,000,000 thereof representing amounts which have been and will be advanced for the account of the railroad corporations, and which it will be their duty to repay as rapidly as practicable. About \$14,000,000 will represent expenditures for equipment of inland waterways. Of the entire \$1,700,000,000, \$486,000,000 represents the aggregate loss to the Government up to April 30, 1919, on account of the two deficits above explained.

Congress was unwilling to make so large an appropriation as this. By an Act approved on June 30, however, it voted the original sum requested, \$750,000,000. In explanation of the reduction the statement was made that the amount granted was sufficient to meet immediate needs, that Congress would be in session throughout the year, and that, if necessity arose, it could be again appealed to.

A special phase of railroad finance was that of providing means by which the roads upon being returned to their owners might repay the \$400,000,000 owed by them to the Government on account of advances made by the latter with which to purchase rolling stock and other equipment. On Nov. 18 Congress passed, and on the following day the President approved, an Act authorizing the President to accept in payment of such obligations securities of the roads running for a period of not to exceed 15 years repayable in instalments or the securities of a corporation specially created to fund such obligations on behalf of the roads.

Railroad Rates.—On Jan. 20 the Interstate Commerce Commission, in

what was known as the Pacific Lumber Co. Case, handed down a decision which attracted much attention as showing that that body still possessed the power to revise rates as fixed by the Director-General of Railroads on behalf of the President. On June 2 the U. S. Supreme Court handed down a decision in a number of cases in which the power of the Federal Government to fix rates on railroads, telegraph, and telephone lines as provided by law was completely upheld. (See also XIX, *Railroads*.)

In November Congress passed and sent to the President an Act providing for the restoration to the Interstate Commerce Commission of the power which it had had over rates prior to the passage of the law authorizing the taking over and operation of the railroads by the Government. This Act was vetoed by the President on Nov. 18. The grounds upon which he did so, as set forth in his veto message, were as follows:

This bill deprives the Government of the United States, while still charged with the exclusive responsibility for operating the railroads during Federal control, of any power to make any change in any intrastate rate, fare, charge, classification, regulation, or practice without having first secured the approval of the proper state regulating tribunals, whereas under the Federal Control Act as originally enacted the Government of the United States has the same power to determine the intrastate matters as it had to determine similar matters of an interstate character.

The immediate effect of such a change in the law would be to deprive the Federal Government of the ability to cope promptly and decisively with operating emergencies which are now arising and must continue to arise during the existing period of heavy traffic.

No attempt was made to pass this bill over the President's veto. Apart from all other considerations, it was felt that the matter might well rest until general legislation was enacted.

Wages of Railroad Employees.—Notwithstanding the fact that hundreds of millions of dollars had been added to the yearly wages bill of the railroads through increases in wages that had been granted since the Railroad Administration took the roads under Federal control, in the middle of the year that organization was confronted with a new crisis growing out of additional demands on the part of

its employees. So serious did the situation become that on July 10 the Director-General, Walker D. Hines, addressed a long letter to the President in which he called the latter's attention to the fact that the Railroad Administration was confronted with demands, actual or prospective, which, if granted, would add over \$800,000,000 to the annual wages bill of the roads. In his letter Mr. Hines set forth that the roads were already running behind the rental guaranteed to their owners by several hundred million dollars a year; that any advance in wages would increase this deficit by that amount; and that the money with which to meet this great deficit could only be secured either from the general Treasury or through the President's using the rate-making power which had been temporarily vested in him. Both of these actions he deemed to be highly inadvisable. He consequently urged that the President take steps to secure the creation of some agency which should examine into the whole question of the justice of the demands of the men for increased wages and determine what should be done. The issue, in a word, was so great, and involved such important questions of public policy, that he did not feel that the Railroad Administration alone should take the responsibility for its solution. He said:

The fact that these demands are made and are so urgently pressed emphasizes the great necessity of having for their decision legislation which will provide adequate machinery representing both the public and the employees. Obviously any such machinery should include a method whereby revenues will be provided to the extent required to pay the increased wages awarded. . . .

I therefore respectfully recommend that Congress be asked promptly to adopt legislation providing a properly constituted body on which the public and labor will be adequately represented and which will be empowered to pass upon these and all railroad wage problems. . . . Such legislation should also provide that if wage increases shall be decided upon it shall be mandatory upon the rate-making body to provide, when necessary, increased rates to take care of the resulting increases in the cost of operating the railroads.

This letter was immediately forwarded by the President to Mr. Esch, chairman of the House Committee on Interstate and Foreign Commerce,

with the recommendation that the action proposed in it be taken. At the same time letters were written by the President to Mr. Gillett, the Speaker of the House, and Mr. Mondell, the Republican floor leader, requesting that the House forego the recess upon which it had decided until the critical situation brought about by the workers' demands had been relieved.

That the gravity of the situation had not been overstated by Mr. Hines was evidenced by the fact that on the day following the dispatch of his letter to Congress, Aug. 1, over 135,000 shopmen, ignoring the orders of their leaders, quit work in order to enforce their demands (see also XV, *Labor*). The officers of the shopmen's union rejected the proposal of Director-General Hines and the President that a special body be constituted to pass upon their demands and threatened that if they were not granted by Sept. 2, a general strike of all shopmen would be ordered which would tie up the roads throughout the country. The men were apparently in a radical mood and coupled with their demands much talk about the democratization not only of the railroads along the lines of the Plumb plan (see *supra*) but of basic industries generally.

The proposal of Mr. Hines and the President did not meet with any more favorable reception by Congress. That body took the position that the Government, through the authority to fix wages vested in the Railroad Administration and the authority to determine rates vested in the President, had adequate power to take action and that the purpose of the proposal was to shift the responsibility from a Democratic Administration to a Republican Congress. On Aug. 6 the Senate Committee on Interstate Commerce by a unanimous vote declined to take action towards putting into effect the President's recommendation.

Thereupon the President, on Aug. 7, directed Mr. Hines to use the authority vested in him to settle the controversy with the men. He said:

You are therefore authorized to say to the railroad shop employees that the question of wages they have raised will be taken up and considered on its merits by the Director-General in conference with their accredited representatives. I hope that you will make it clear to the men

concerned that the Railroad Administration cannot deal with problems of this sort or with any problems affecting the men, except through the duly chosen international officers of the regularly constituted organizations and their authorized committees.

These officers in the meantime were doing all they could to induce the striking shopmen, who had gone out against their orders, to return to work pending negotiations for adjustment of the dispute. Their efforts gradually succeeded except at a few points.

On Aug. 25 the President issued a formal statement regarding his attitude towards the demands of railway labor for increased wages. He pointed out that these demands were largely based upon the increase in the cost of living; that in his opinion this increase was a temporary condition and at least had reached its peak; that the railroads were now being operated at a loss; and that any increase in wages would have to be met out of the Treasury or by an increase in rates, either of which meant throwing the burden on the general public and thus increasing the cost of living, the very thing that it was sought to combat. He appealed to the men to postpone their demands until an opportunity had been had to reach more normal conditions and to give effect to measures then under way for reducing living costs. "Any substantial increase of wages in leading lines of industry at this time," he said, "would utterly crush the general campaign which the Government is waging with courage, vigor, and substantial hope of success, to reduce the high cost of living." He concluded, however, with the statement that the demand of the shopmen for an increase in their wages that would make them correspond with those paid to other classes of employees was in a measure well founded and that an increase of four cents an hour would be granted.

This appeal of the President was rejected by the representatives of the men, and the local unions were instructed to vote upon the question of a strike to enforce their demands. On Aug. 18 the President directed the Railroad Administration to use the full power of the Government to operate the railroads in California, Nevada, and Arizona, where an unau-

thorized strike of the four brotherhoods had taken place, and the Attorney-General instructed the district attorneys to arrest and prosecute all persons interfering with railroad traffic. On the same day Director-General Hines sent the following ultimatum to the strikers:

All striking employees who do not report for duty on and after 7 o'clock on Saturday morning, Aug. 30, when and as called for duty, will be regarded as having terminated their employment and their places will be filled.

Any one who interferes with or impedes the possession, use, operation, or control of any railroad property, or railroad under Federal control, commits an offense against the United States, punishable by fine and imprisonment, and will be arrested and prosecuted accordingly. Any one who obstructs or attacks persons assisting or endeavoring to assist in the possession, use, operation, or control of any railroad under Federal control, will be guilty of the offense described and will be dealt with accordingly. Any one who obstructs or retards the passage of the mail or any vehicle or person carrying the same likewise commits an offense against the United States punishable by fine and imprisonment, and will be arrested and prosecuted accordingly. Instructions have been issued to the United States district attorneys and to the United States marshal to take the necessary steps to enforce these provisions of the statutes of the United States.

The governors of the states involved, the mayors of cities involved, and all other state and local peace officers are relied upon to lend assistance in the performance of the public service as above outlined in every possible manner, including giving aid in enforcement of the statutory provisions above referred to, and also in enforcing all state statutes, municipal ordinances, and other local public regulations which will aid in protecting the railroad property and its operation and in protecting those assisting or endeavoring to assist in the operation of the railroads.

This action, though directed against a local situation, was significant as showing the intention of the Government to act vigorously whenever conditions demanded. On Sept. 21 announcement was made that the Railroad Shopmen's Union had accepted the decision of the President as made known in his letter of Aug. 25. The situation was thus adjusted for the time being at least. In November, however, the railroad brotherhoods again raised the question of an increase in the wages of train employees, and as the result of a conference held at Washington the Railroad Administration announced an increase in

wages of certain classes of trainmen which involved an increase in the annual wage bill of the roads of \$36,000,000. A few days later, on Nov. 24, announcement was made by the Railroad Administration that a new wage and working agreement had been signed with the Brotherhood of Maintenance-of-Way Employees and Railway Track Laborers in which the demands of the men had been largely met. About 400,000 men were affected by this agreement. It provided for a basic eight-hour work day and time and a half for overtime.

Telegraph, Telephone, and Cable Systems.—Control of the telegraph and telephone lines was assumed by the Government on Aug. 1, 1918, and that of the marine cables on Nov. 2, 1918, the latter a few days before the signing of the armistice, when the cessation of hostilities was almost certain. Both of these seizures had met with much criticism, due largely to the fact that their necessity had never been shown.

On Jan. 1, 1919, Postmaster-General Burleson, under whose direction all of these lines had been placed, ordered an increase of wages of all employees on Government-controlled telegraph lines varying from five to 10 per cent. according to length of service. In explanation of this increase he said: "The above increases are made after a careful investigation of a petition filed by the employees of one of the telegraph companies through its officers who recommended that certain increases be made." On Jan. 20 the Postmaster-General announced increased rates for toll and long-distance telephone messages. This action, it was stated, was taken upon the recommendation of a Committee on Rate Standardization which had been set up by him. In a number of states this change in rates was immediately contested through applications to the courts for injunctions to restrain its enforcement. Protests were also filed by a dozen or more state public-utilities commissions. These steps seriously interfered with the enforcement of the order.

On March 22 a long standing quarrel between the Wire Administration and the officers of the Mackay System, or the Postal Telegraph Company,

came to a head through the summary removal by the Postmaster-General of the officers of the Company on the ground that they were not loyally carrying out his orders. On March 29 an increase of 20 per cent. in domestic rates, to take effect on April 1, was ordered. On June 7 the Commercial Telegraphers Union of America ordered a nation-wide strike of telegraph operators to enforce its demands for higher wages and a redress of other alleged grievances, one of which was that the telegraph administration was discriminating against union employees. This strike was apparently a failure from the start. A threatened strike of telephone workers in June was averted by the Postmaster-General's granting all of their demands, the most important of which was for the right to organize and bargain collectively (see also XV, *Labor*).

Much the most important question arising during the year, however, had to do with the policy of the Government in respect to the temporary or permanent retention of the lines. Postmaster-General Burleson was an avowed advocate of permanent Government ownership and operation of at least all the telegraph and telephone lines. On Dec. 16, 1918, he had sent a long communication to Mr. Moon, chairman of the House Committee on Post Office and Post Roads, urging legislation to provide for such a policy. He maintained that permanent possession could be taken of the lines without the expenditure of a dollar from the Treasury, and that through the savings by the elimination of duplications in plants and operating expenses, the entire telegraph and telephone systems of the country could be paid for through an amortization fund in 25 years without increasing the rates to the public. Failing Government ownership, the Postmaster-General urged that legislation be enacted extending the period of Government control beyond that fixed by the existing law, namely, the termination of the war.

On Jan. 29 the House Committee on Post Office and Post Roads reported to the House a resolution introduced by Mr. Moon providing for the retention of the telegraph and telephone lines until Dec. 31, 1919. This was inter-

preted as a compromise; the proposition for permanent control was defeated, but the Government was to be given control for another year. No immediate action was taken on this resolution. Public sentiment against the retention of the lines longer than was absolutely necessary was apparently very strong. On Feb. 23 the National Association of Railway and Utilities Commissions addressed a letter to the President urging that control be surrendered by June 30 at the latest. Mr. Burleson apparently saw that it would be impossible for him to put through his programme of permanent public ownership, or even of extension of Government control for a period of years. On April 28, accordingly, he announced, to the surprise of the public, that he had recommended to the President the return of the cable lines to their owners and would recommend that the telegraph and telephone lines also be returned as soon as legislation could be obtained from Congress safeguarding the interests of the owners. On the next day, April 29, he issued an order, with the approval of the President, directing the return of the cables to their owners to take effect on May 2.

In his message to Congress upon its convening in special session on May 20, President Wilson declared that the telegraph and telephone lines would be returned to their owners as soon as this could be done with due regard to all interests involved. He strongly advocated, however, legislation that would bring about a unification and coördination of the lines. He said:

It is clearly desirable in the public interest that some legislation should be considered which may tend to make of these indispensable instrumentalities of our modern life a uniform and coördinated system which will afford those who use them a complete and certain means of communication with all parts of the country as has so long been afforded by the postal system of the Government and at rates as uniform and intelligible.

Two days later, on May 22, he transmitted with his approval to Mr. Moon a report of the Wire Control Board advocating legislation for the return of the telegraph and telephone lines to their owners providing for their unification and control by the Government. The recommendations were:

(1) That the various wire systems be coordinated as to operation, and that, subject to the approval of the Interstate Commerce Commission, any wire company may purchase or merge with another wire company.

(2) That the Interstate Commerce Commission be empowered to fix interstate rates.

(3) That the rates be so fixed that they shall yield a reasonable return on the value of the property.

(4) That a tribunal on which the public, employees, managerial force, and capital shall be fairly represented shall be created in order to hear grievances affecting working conditions and wage changes.

(5) That no alteration of wage schedules shall be made until approved by the Interstate Commerce Commission, which will then decrease or increase the rates proportionately.

On June 5 the Postmaster-General again surprised the public by the announcement that without waiting for legislation he had returned to their owners "control over the operations" of the telegraph and telephone lines. This surrender of control over operations, however, did not mean that the Government had surrendered possession of the lines. It meant merely that responsibility for the actual conduct of the business in accordance with Government rules and regulations had been restored to the several companies owning the lines. The decision was apparently arrived at very suddenly, and the accusation was made that it was induced by the desire of the Postmaster-General to shift to the shoulders of the officers of the lines responsibility for the settlement of a strike of telegraph operators which had just been ordered to take effect in a few days.

This step by the Postmaster-General hastened action by Congress for the complete surrender of the lines. The Senate on June 10 passed unanimously a bill for the immediate repeal of the law authorizing the seizure of the lines by the Government. On June 19 the House passed this bill with certain amendments. After some delay an agreement between the two houses was reached and the bill became law on July 11. Under its terms the joint resolution of July 16, 1918, authorizing the President to take possession and assume control of the telegraph, telephone, marine cable, and radio systems of the country in time of war, was repealed, the repeal to take effect on the last day of the

month in which the Act was approved, which dictated complete surrender of the lines on July 31. Provision was made, however, that the existing toll and exchange telephone rates, as established by the Postmaster-General, should continue in force for a further period of not exceeding four months, unless modified or changed by public authorities, state, municipal, or other.

On Nov. 13 the President transmitted to Congress a report of the Postmaster-General on the operation of the telegraph and telephone lines by the Government. From this report it appears that the operation of the lines cost the Government a net loss of \$14,418,237. This sum represents the difference between the net earnings of the companies and the compensation guaranteed by the Government. No figures were given in respect to the financial results of the operation of the cable lines.

Radio Communication.—Control and operation of all facilities for radio communication were early taken over by the Navy Department as a war measure. That Department, however, did not content itself with assuming the possession of radio stations for the time being, but purchased outright and thus took over ownership of most of these stations. Upon the termination of hostilities the Secretary of the Navy urged strongly that his Department be given a permanent monopoly of all means of radio communication and prepared and had introduced a bill providing for such a policy. Elaborate hearings were held on this bill, but no final action was taken during the year. (See also XI, *The Navy*.)

The Merchant Marine.—Scarcely second in importance to the adoption of legislation to determine the policy of the Government in relation to the railroads was the enactment of legislation that would fix in a similar manner the policy of the Government in respect to the great shipping industry which had been built up under Government auspices during the war. The signing of the armistice found the Government in possession of practically the entire merchant marine of the country that was available for overseas trade. Many of the vessels had been taken over from private own-

I. AMERICAN HISTORY

ers and could be returned to them as soon as conditions warranted. In great part, however, the vessels had been built for the Government either in its own yards or in yards of private shipbuilding concerns and were owned outright by the Government. The Government was also in possession and had ownership of shipyards rivaling or exceeding in size any others in the world. These yards, moreover, were actively engaged in carrying into effect the vast shipbuilding programme upon which the Government had entered. This programme originally contemplated the building in this country of 17,794,561 deadweight tons of shipping, made up of 2,105 steel steamships of 14,329,811 deadweight tons, 1,009 wood steamships of 2,987,750 deadweight tons, 50 composite ships of 175,000 deadweight tons, and 43 concrete ships of 302,000 deadweight tons, a total of 3,215 ships; but it was later reduced by cancellation of contracts for 900 vessels aggregating 4,404,505 deadweight tons.

Of this programme there had been delivered up to Sept. 1 a total of 1,321 steamships, representing a deadweight tonnage of 7,284,028. Fitting out in wet basins on that date were 377 steamships, aggregating 1,749,357 deadweight tons. On the launching ways were 468 steamships, of a deadweight tonnage of 3,135,722. Vessels under contract but on which work had not commenced numbered 194, of a deadweight tonnage of 1,447,919. To complete the programme there remains to be delivered a total of 6,432,998 deadweight tons. (See also XIX, *Merchant Marine*; and XX, *Naval Architecture*.)

Concretely the questions that had to be solved by the Government were:

(1) The conditions under which commandeered vessels would be returned to their owners.

(2) The continuance of the building programme.

(3) The continuance of Government ownership and operation of shipyards.

(4) The continuance of Government ownership and operation of vessels engaged in foreign trade.

(5) The steps to be taken to enable private shipyards and private steamship lines to compete with foreign yards and shipping companies to the end that the United States might have a merchant marine proportionate to its needs and those possessed by other countries.

On June 12 the U. S. Shipping Board, in response to a request by Congress, submitted a comprehensive report outlining the policy which in its opinion should be adopted in reference to these matters. On the receipt of this report the House immediately directed its Committee on Merchant Marine, of which Mr. Green of Massachusetts was chairman, to make a thorough investigation of the whole shipping problem and to report its conclusions by bill or otherwise. This Committee held extensive hearings and on Nov. 6 reported a bill entitled: "A Bill to provide for the promotion and maintenance of the American merchant marine, to repeal certain emergency legislation, and to provide for the disposition, requisition, and use of property thereunder, and for other purposes." This bill passed the House on Nov. 8 and was pending in the Senate at the close of the year.

In broad terms the bill provides for repeal of the emergency shipping legislation; taking from the President of control over the Shipping Board and centralizing authority and responsibility in that body; and sale by the Shipping Board of vessels owned by it as rapidly as possible so that the Government may cease to be the owner and operator of merchant vessels. Elaborate provision had especially to be made regarding the steps required in putting this programme into execution and the future operations of the Shipping Board. Into these it is not necessary here to enter. (See also XIX, *Merchant Marine*; and XX, *Naval Architecture*.)

NATIONAL DEFENSE

Demobilization of the Army.—The termination of hostilities on Nov. 11, 1918, brought with it a number of problems requiring immediate action by the War Department. Among

these none was more pressing than that of disbanding or, to use the more technical term, demobilizing the huge army of over 4,000,000 men that had been raised for the prosecution of the

war. This had two phases, the return of our 2,000,000 troops from Europe and the disbanding of the troops in the United States. In respect to the first the demand was insistent on the part of the troops themselves and on the part of the public in America that the return of the troops be accomplished as rapidly as possible. There is every reason to believe that this demand was met by the War Department as rapidly as circumstances would permit, the movement being largely conditioned by the ability to secure shipping for the purpose. On July 29 the Secretary of War informed the House Committee on Military Affairs that in two more months, or by Sept. 30., demobilization would be practically complete, leaving in Europe only the comparatively small contingent of American troops in the Allied Army of Occupation in the Rhine provinces of Germany. (See also XI, *The Army*.)

Retention of Troops in Siberia.—The retention or withdrawal of the troops that had been sent to Siberia to assist in the guarding of the Siberian Railroad was a question distinct from that of retaining troops in Europe. Under an agreement with the Allies, and particularly with Japan, a contingent of about 8,000 American troops under Gen. Wm. S. Graves had been sent to Siberia in August, 1918, to coöperate with troops of the other Allies in the guarding of the Siberian Railway and in the prevention of the extension of Bolshevik rule over the vast provinces of eastern Siberia (*A. Y. B.*, 1918, pp. 87, 198). The question involved in this expedition were not wholly of a military character. They involved matters of international policies of the highest order—the extent to which the United States should be the avowed opponent of the Bolshevik Government, the recognition of the Kolchak Government with headquarters at Omsk, and the relations between the United States and Japan. In reaching a decision on these questions the Government was embarrassed by the fact that the American people had reached no firm opinion with regard to them. Generally speaking, however, public sentiment seemed to be opposed to the use of American troops in this way.

The position was taken that the United States was not at war with Russia and that it was no part of our duty to assist one side or the other in the contest between the Bolshevik and anti-Bolshevik factions. There can be little doubt that the radical element in the United States, which was, sentimentally at least, pro-Bolshevik, did all in its power to force the Government to withdraw our troops, and their efforts found not a little support in Congress. Senators La Follette and Johnson made bitter attacks upon the President for retaining our troops in Siberia, and the latter introduced a resolution providing for their return.

The matter came to an issue on Feb. 14, when the Johnson resolution was defeated only by the casting vote of the Vice-President. On July 25 President Wilson informed the Senate, in response to a further resolution introduced by Senator Johnson, that it was imperative that the American troops should be retained in Siberia in order to protect the railway line, which, in accordance with an agreement made with the Allies, was being operated by an American technical commission headed by John H. Stevens. He said:

This measure was taken in conjunction with Japan and in concert of purpose with the other Allied powers, first of all to save the Czecho-Slovak armies which were threatened with destruction by hostile armies apparently organized by, and often largely composed of, enemy prisoners of war. The second purpose in view was to steady any efforts of the Russians at self-defense, or the establishment of law and order in which they might be willing to accept assistance.

After describing the organization of the Stevens Commission for the operation of the road at the request of the Provisional Government of All-Russia and in accordance with the agreement entered into with Japan, in which the other Allies acquiesced, the President continued:

In accepting the railway plan, it was provided that some protection should be given by the Allied forces. Mr. Stevens stated frankly that he would not undertake the arduous task before him unless he could rely upon support from American troops in an emergency. Accordingly, as provided in the railway plan, and with the approval of the Interallied Committee, the military commanders in Siberia have

established troops where it is necessary to maintain order at different parts of the line.

The instructions to General Graves direct him not to interfere in Russian affairs, but to support Mr. Stevens wherever necessary. The Siberian Railroad is not only the main artery for transportation in Siberia, but it is the only open access to European Russia today. The population of Siberia, whose resources have been almost exhausted by the long years of war and the chaotic conditions which have existed there, can be protected from a further period of chaos and anarchy only by the restoration and maintenance of traffic along the Siberian Railway.

All elements of the population in Siberia look to the United States for assistance. This assistance cannot be given to the population of Siberia, and ultimately to Russia, if the purpose entertained for two years to restore railway traffic is abandoned. The presence of American troops is a vital element in this effort. The services of Mr. Stevens depend upon it, and, a point of serious moment, the plan proposed by Japan expressly provides that Mr. Stevens and all foreign railway experts shall be withdrawn when the troops are withdrawn.

This message, from which only a brief extract has been taken, was an important one as giving for the first time authoritative information upon the Siberian policy of the Government. It failed, however, to discuss the acute differences which had arisen between the United States and Japan in carrying it out (see II, *International Relations*). Nor did it quiet the demand for the withdrawal of the troops. On Sept. 15 Secretary of War Baker let it be known that the Government had still no intention of withdrawing them. He said that at that time the number of foreign troops in Siberia was as follows: Japanese, 60,000; Czechs, 50,000; American, 8,477; British, 1,429; Italian, 1,450; and French, 1,076. (See also XI, *The Army*.)

Settlement of War Contracts.—With the cessation of hostilities it became imperative that steps should be taken at once to stop work upon contracts calling for the supply of materials or the execution of other war work. The amounts involved under these contracts ran into billions of dollars. Furthermore, it was desirable that the financial relations between the United States Government and our Allies in respect to furnishing of supplies and materials to each other should be adjusted at the earliest possible date. To have at-

tempted to do so under ordinary procedure would have entailed intolerable delay, and in many cases would have resulted in injustice because of the fact that, under the emergency conditions, it had not been possible in all cases to follow strictly legal procedure. The situation was one in which authority was required to settle these matters on an equitable, rather than a strictly legal, basis.

The matter was brought to the attention of Congress, and on March 2 an Act was passed empowering the War Department to settle its outstanding contracts practically on this basis. The Act authorized the Secretary of War to adjust and pay all war contracts that had been entered into in good faith prior to Nov. 12, 1918, even though such agreements had not been executed in the manner prescribed by law, but in estimating the payments to be made, no allowance was to be made for prospective profits except as to services actually rendered or supplies furnished or work done. The Secretary of War was also authorized, through such agency as he might designate, to settle upon an equitable basis all agreements or contracts entered into with any foreign Government for the furnishing of services or supplies to the American Expeditionary Forces or for the furnishing by the U. S. Government of services or supplies to such Government.

Under this Act the War Department created a War Department Claim Board and the United States Liquidation Commission, War Department, for the adjustment of these two classes of claims. Through these agencies their settlement was proceeded with with great dispatch. The most important action of the Liquidation Commission was the negotiation of an agreement with the French Government under which the latter agreed to pay to the United States a lump sum of \$400,000,000 for all permanent structures and improvements made by the American Expeditionary Forces in France and all supplies received or turned over to it by the American Army. The contract was a very favorable one to France, but the feeling was that that country should be treated in the most generous

spirit, and that it would be unwise to attempt to retransport to America the material and supplies thus disposed of. (See also XI, *The Army*.)

Investigation of the War Department.—During the progress of the war, as already noted, the President had strenuously and successfully resisted every move by Congress to inquire into the conduct of the war. It was inevitable that with the termination of hostilities Congress should insist upon a thorough investigation of the manner in which the large powers conferred upon the President and the Secretary of War had been exercised. Especially was this so when the Republican Party gained control of the two houses. The Democrats very wisely offered no opposition to such a proposal. By a unanimous vote the House on June 4 adopted a resolution providing for the appointment by the Speaker of a select committee of 15 to investigate all contracts and expenditures of the War Department during the war. This committee was appointed on the following day with Representative Graham of Illinois as its chairman. In performing its work the committee organized a number of subcommittees, one of which was to investigate expenditures abroad. These subcommittees and the main committee made certain partial reports dealing with features in respect to which they claim that affairs were improperly conducted and indicating that serious errors of judgment and acts of inefficiency occurred. The committee, however, did not complete its labors during the year.

The Army Court-Martial System.—A feature of the military administration of the country that received special attention during the year was that having to do with the trial of officers and men of the Army accused of infractions of military laws and orders. The discussion arose as the result of a scathing indictment of the system in vogue by Brig-Gen. Samuel T. Ansell, Acting Judge-Advocate-General of the Army, in testimony before the Senate Committee on Military Affairs in February. His testimony was not only a criticism of the system itself, but partook of the nature of an attack upon Judge-Advocate-General Crowder and the Secre-

tary of War for their support of the system and their refusal to put into effect recommendations made by General Ansell for the purpose of correcting its more glaring defects. The purpose of his testimony was to endorse and advocate the passage of a bill introduced by Senator Chamberlain, chairman of the Senate Committee on Military Affairs, to confer on the Judge-Advocate-General of the Army the power of reviewing court-martial proceedings. Its result was to bring into the open a controversy between General Ansell and Senator Chamberlain on the one side and General Crowder and Secretary of War Baker on the other that ran with great bitterness of feeling and personal rancor during the greater part of the year.

The contentions of General Ansell and Senator Chamberlain were that the sentences imposed for slight offenses by the courts-martial were of a severity to shock every sense of justice; that Judge-Advocate-General Crowder and Secretary of War Baker refused to adopt a construction of the law which, according to General Ansell, permitted a review of their decisions by the Judge-Advocate-General; that trials were not conducted with due regard to the requirements of a fair trial; that adequate representation of the accused by counsel was not afforded; and that trivial offenses scarcely worthy of more than a reprimand were punished by sentences of years of imprisonment. Numerous court-martial proceedings were cited in support of these contentions. The necessity for power of review was thus urged by General Ansell:

At the outbreak of the war the state of the law, as the Department had for years construed it, was that the judgment of a court-martial, once approved by the officer in the field appointing it, was final and unmodifiable; that no matter how gross and prejudicial and palpable the errors of law in the proceedings as shown upon the face of the record, there was no power in the Department or elsewhere to modify, reverse, or set the judgment aside. This was the crux of the difficulty. There was no authority whatever with power to correct for prejudicial errors of law.

General Crowder and Secretary Baker contended, on the other hand, not only that General Ansell's interpretation of the law in respect to the

right of revision of court-martial proceedings was erroneous, but that it was not desirable that such right should exist. They took issue with General Ansell also with regard to the desirability of the conduct of court-martial proceedings with the same regard for legal rules of evidence and procedure as obtain in civil cases. It was their contention, and in this General Pershing and many other officers concurred, that courts-martial are essentially instruments for maintenance of discipline rather than trials in the ordinary sense and that if this power was taken out of the hands of commanders in the field through provision for review of their decisions, the disciplinary powers of such officers would be correspondingly weakened. Fundamentally the issue was thus one as to the nature and functions of courts-martial—whether they should be viewed purely as judicial inquiries or as administrative procedures in enforcing discipline. At the same time it was admitted that excessively severe penalties had been imposed in many cases, and the statement was made that these sentences were being reviewed with a view to recommending their commutation by the President.

The objections to the existing system were met in part by the passage of an amendment to the Articles of War on Feb. 28, which provided that "the power to order the execution of the sentence adjudged by a court-martial shall be held to include *inter alia* the power to investigate and to revise the whole or any part of the sentence;" also that "when empowered by the President so to do, the commanding general of the army in the field or the commanding general of the territorial department or division may investigate or revise and order executed as investigated or revised any sentence which under these articles requires the confirmation of the President before the same may be executed." This, it will be noted, still leaves authority in the hands of commanding officers, whose action may not be reviewed by the legal department of the War Department. It thus preserves the disciplinary feature of court-martial proceedings.

On March 26 Secretary Baker announced that he had asked the Presi-

dent of the American Bar Association to appoint a committee of lawyers to make a thorough study of the whole subject of military law and its administration. At the request of the Secretary, Colonel Ansell, who meanwhile had been demoted and removed from duty in the office of the Judge-Advocate-General, submitted concrete suggestions for reform for the consideration of this committee. One fact brought out in this letter of April 6 which seemed to receive general endorsement by War Department officials was that courts-martial were too frequent and that many offenses ordered to court-martial should have been settled by ordinary disciplinary proceedings. The American Bar Association Committee reported in July substantially supporting the position taken by Secretary Baker and General Crowder, and in August the Secretary approved a report by a special War Department Board on Courts-Martial, headed by Gen. Francis J. Kernan, which took the position that only minor changes were needed in the existing system.

Reduction of the Army.—Much the most important post-war question affecting the Army was that of the provision that should be made for the future military establishment. This question had two phases, one, the immediate reduction that should be made in the strength of the Army, and the other, the permanent policy that should be adopted as to the size of army to be maintained and the manner in which its personnel should be secured and trained. (See also XI, *The Army*.)

With regard to the first question, Secretary of War Baker announced on Jan. 3 that the General Staff had framed a bill, which had his approval, calling for the maintenance, for the present at least, of a standing army of 500,000 men. He stated that in this bill no effort had been made to deal with the question of universal military service or training, since this was a matter to be determined in the future, and that all that was sought therein was to meet the requirements of the immediate present. A decision on this recommendation had to be made in connection with the Army Appropriation bill then under consid-

eration in Congress. The House was not in favor of so large an Army. Furthermore, it took the position that it would be extremely difficult, if not impossible, to secure an Army of this size by voluntary enlistment and that the expense involved would be greater than the Treasury could stand. The Appropriation bill as it passed the House on Feb. 18 provided for an army of only 175,000, the limit set by the National Defense Act of 1916, but the bill failed of enactment in the Sixty-fifth Congress. The new Congress which convened on May 20 was more liberal. The new Appropriation bill as it passed the House provided for an Army of 300,000. This was raised to 400,000 by the Senate, which voted on June 25. In conference a compromise was reached on 325,000, and the bill was enacted on July 11. Meanwhile, by an Act approved on Feb. 28, provision had been made for the resumption of voluntary enlistments, the condition being made that one-third of the enlistments should be for one year and two-thirds for three years. In operating under this Act the War Department pursued the unusual policy of permitting recruits to indicate their wishes with regard to service in the Army of Occupation in Germany, in the insular dependencies, in Siberia, etc. (See also XI, *The Army*.)

Permanent Military Policy.—This action still left open the question of the permanent policy of the Government with regard to the character and size of the Army that the country should maintain. To a large extent the discussion centered about the question whether the country should depend wholly upon a Regular Army, or largely upon universal military training or service. On July 26 Senator Wadsworth, chairman of the Senate Committee on Military Affairs, appointed a subcommittee with himself at its head to hold hearings and otherwise to make a thorough study of the problem. A few days later, on July 31, Senator Chamberlain, former chairman of the Senate Committee on Military Affairs, and Julius Kahn, chairman of the House Committee on Military Affairs, introduced in their respective houses an identical bill providing for a system

of universal, compulsory military training of all youths for six months some time during the period covered by the ages of 18 to 20 years. Under this bill, which included many other features of an administrative character and made provision for an Army reserve, the Regular Army would be reduced to 225,000 men.

On Aug. 4 Secretary Baker presented to the Senate and House Committees on Military Affairs a bill which had been prepared by the General Staff. This measure called for a Regular Army of 21 divisions and necessary auxiliary services, with a peace strength of 510,000 enlisted men and a war strength of 1,250,000. The reserves to fill up the divisions to full strength would be provided through a modified form of the Selective Service Act under which the National Army was raised for the war with Germany. For training purposes only youths in their nineteenth year would be called to the colors for a three-months period, to be attached to regular divisions for that time; it was estimated that this would provide an annual class of 600,000 men to receive intensive military instruction, stripped of all vocational or other educational features. Youths in training would receive no pay, but would receive payment for all expenses and an allowance of \$5 a month for incidentals. No exemptions would be granted except to soldiers, sailors, and members of the merchant marine, public or private, and to those mentally or physically deficient. To meet the case of those with dependents, however, provision was made for deferring the training period. For two years after training the youths would be required to submit certain reports giving their addresses, changes in status as to dependents, physical condition, etc., for which they would receive \$1 for each report called for and submitted. In the event of war all men in this status would be called to the colors to fill up the regular divisions and compose the first replacement units. The bill provided for a reorganization of the Regular Army substantially as recommended by Secretary Baker when the Army Appropriation bill was under consideration. No mention of the National Guard was made in the bill, but

I. AMERICAN HISTORY

in his letter to the committee chairman Secretary Baker said that he assumed that the National Defense Act of 1916 would be continued in force, making the Guard subject to federalization for war. The theory on which the bill rested was that an army of 1,250,000 should be available for rapid mobilization at need.

The Senate Committee immediately inaugurated hearings on the two bills, at which a large number of the higher officers of the Army gave testimony. It appeared at once that the General Staff bill by no means had the united support of the Army. Thus, Gen. C. C. Williams, Chief of Ordnance, submitted a statement in which he said that in his opinion the bill would result in grave injury to the military organization of the United States, that it would "seriously impair the efficiency of the Army" and would "virtually nullify the whole preparedness programme," etc. Gen. Leonard Wood also opposed the bill, stating that if a policy of universal military training were adopted, a standing army of 225,000 or 250,000 at the most would be adequate. On Oct. 8 General Pershing appeared before the Senate Committee and outlined at length his views regarding the character of the military establishment the country should have. He disagreed with many of the features of the General Staff bill. For example, he insisted that the standing army, officers and men, should not total more than 275,000 or 350,000, as against 575,000 recommended by the General Staff. He supported, however, the proposal of the bill for universal military training of all youths of 19 years, but believed that the period of training should be six instead of three months. Promotions, he believed, should be made from a single list instead of from lists for the several branches of the service, and should be the result of selection rather than seniority.

In his annual report for 1919, submitted in December, Secretary of War Baker endorsed the General Staff bill, which he said had been prepared with his approval. Especially was he in favor of that feature of the bill providing for the reorganization and strengthening of the General Staff,

which had been attacked by Senator Chamberlain as setting up Staff despotism. With regard to the military establishment proper, he stated that there were three methods of raising an army, (1) by compulsion, (2) by money inducements, and (3) by making enlistment in the Army an educational opportunity. In respect to the first he said "the country has accepted the principle of the selective-service law as the fair and democratic mode of assigning men to military service in war, but compulsory service in time of peace the country has not accepted, and its application would be a poor substitute for the voluntary principle properly applied." The second he rejected as prohibitive on account of the cost involved. The third was consequently the policy he believed should be adopted. In advocacy of it he said:

The third of these plans, however, is in harmony with the genius of our institutions. It contemplates the establishment of a system of training divided into two parts, the first military, and the other educational and social. The second part of the plan looks to the establishment of systems of schools adapted to the needs and aptitudes of the men, teaching the formal branches of education and adding to them the skilled trades, so that at the end of a term of enlistment the young man entering in his nineteenth year will go back to civil life with the physical set up which the open athletic life of the Army gives and with the education and training which will make him more valuable in civil pursuits than he could otherwise have been. And this system of training and education must be complete and carried out, not half-heartedly, but whole-heartedly and surrounded by social and recreational opportunities supplied by the Government and administered by wise and sympathetic men, so that the graduate from the Army will have been to school and will bring back with him the social virtues which result from education of mind and hand acquired in an environment made stimulating by the presence of a high purpose and sense of service and generous associations with his fellows. An Army trained in such a spirit would be an effective weapon for the protection of the national interest; it would not be an idle and unproductive body, but would be an invaluable addition to the educational facilities of the country, and incidentally it would repeat year after year the great fusing operations which we saw in the war, whereby men of all tongues and races, and from all the widely scattered parts of our own great country were brought together in intimate association and taught to interpret and appreciate alike the solid foundation upon which liberty and progress rest in a democracy.

I. AMERICAN HISTORY

The Naval Programme.—On Dec. 30, 1918, Secretary of the Navy Daniels appeared before the House Committee on Naval Affairs and urged the adoption of a programme of naval construction to extend over a three-year period calling for the expenditure of \$600,000,000 (*A. Y. B.*, 1918, p. 343). Coming as it did while the President was earnestly seeking for the establishment of a League of Nations that would curtail armaments and lessen the likelihood of war, this demand for a greatly increased navy gave rise to the query as to why it was being urged so strongly. Mr. Daniels declared that the President had said that nothing would so aid him at the Peace Conference as the authorization by Congress of this programme for a large navy. The proposal was interpreted by many as a "big stick" to induce foreign powers to agree to the President's plan for a League of Nations. Other queries raised were whether a great navy was desired on account of possible trouble with Great Britain or Japan. Mr. Daniels proposed that the bill authorizing the programme should contain the following provision:

If at any time before the construction authorized by this Act shall have been contracted for, there shall have been established with the cooperation of the United States of America an international tribunal or tribunals, competent to secure peaceful determinations of all international disputes, and which shall render unnecessary the maintenance of competitive armaments, then, and in that case, such naval expansions as may be inconsistent with the engagements made in the establishment of such tribunal or tribunals may be suspended, when so ordered by the President of the United States.

Influenced by a vigorous message from the President in its support and

by certain confidential communications from Paris, the House Committee on Naval Affairs reported to the House on Jan. 21 a bill providing for this programme. The intense interest of the President was shown by a cablegram to Mr. Padgett, the chairman of the Committee, in which he said: "May I not express my gratification, gratitude, and congratulations at the unanimous report of the three-year naval programme." On Feb. 11 the House accepted the programme by a vote of 194 to 142 and passed the Naval Appropriation bill containing it by the vote of 281 to 50. The President's triumph, as it was termed, came through the prompt report by the Committee on Rules of a rule making such action in order in the appropriation bill, thus nullifying a point of order that had been raised against it by the Republican leader, James R. Mann, and sustained by the chair. The bill, however, failed to become law, being one of the important appropriation bills that failed of enactment by reason of the filibuster that marked the end of the Sixty-fifth Congress on March 4. The matter was finally settled by Secretary Daniels on May 27, when he informed the House Committee on Naval Affairs that in his opinion the proposed programme should be dropped. In explanation he said that as the United States had initiated at the Peace Conference a proposal for a League of Nations, it should show its faith in such a project by not seeking greatly to expand its armaments. There would thus appear to be little doubt that the proposal was brought forward by the President as a means of making his will prevail at Paris. (See also XI, *The Navy*.)

NATIONAL FINANCES

Revenue and Expenditure.—On Nov. 20 the Secretary of the Treasury sent to Congress his annual report for the fiscal year ending June 30, 1919. This report gave a very interesting survey of national finance over the whole period of the war, which is summarized elsewhere in the *YEAR BOOK* (see XIII, *Public Finance*). Besides it gave an unusually detailed consideration of the

financial operations of the Government during the year to which it relates and of the problems to be met in providing for future expenditures. The total ordinary receipts of the Government during the fiscal year amounted to \$4,647,603,852.46; receipts from the Panama Canal, to \$6,777,046.55; receipts from postal revenues, to \$364,847,126.20; and receipts from borrowings, to \$29,075,-

976,515.75; making a grand total of \$34,095,204,540.96. The total of ordinary disbursements during the year amounted to \$15,365,362,741.76; special disbursements for the purchase of obligations of foreign Governments and farm loan boards, to \$3,574,512,664.15; public-debt disbursements, to \$15,837,566,009.13; Panama Canal disbursements, to \$12,265,775.08; and postal-service disbursements, to \$362,504,274.24; a grand total of \$35,152,211,464.36. (See also XIII, *Public Finance*.)

Estimates for 1920 and 1921.—For the fiscal year ending June 30, 1920, the Secretary of the Treasury estimated that ordinary receipts would amount to \$6,100,250,000; Panama Canal receipts, to \$7,200,000; and public-debt receipts, to \$1,210,556,634; a grand total of \$7,318,006,634. The total ordinary expenditures were estimated at \$6,097,237,892 (of which \$1,052,300,000 represented interest on the public debt); Panama Canal expenditures, at \$15,284,837; and special expenditures for the purchase of obligations of foreign Governments, at \$700,000,000; a total of \$6,812,522,729, exclusive of any payments on account of reduction of the principal of the public debt. The latter class of expenditures would entail an expenditure, according to the estimates, of \$4,664,104,490. Adding this to the foregoing total, there is produced a grand total of \$11,476,627,219. It will thus be seen that the Secretary estimated that the total gross expenditures over receipts, exclusive of reduction of the public debt, would amount to \$705,072,729, and that the excess of total expenditures over total receipts would be \$4,158,620,585.

For the fiscal year ending June 30, 1921, the Secretary estimated ordinary receipts at \$5,412,000,000; Panama Canal receipts, at \$8,000,000; and public-debt receipts, at \$200,350,000; a total of \$5,620,350,000. Ordinary expenditures (which were stated to be incomplete) were estimated at \$3,517,752,594; Panama Canal expenditures, at \$18,245,391; and public-debt expenditures (other than interest which is included in ordinary expenditures), at \$437,800,000; a grand total of \$3,973,797,985. On the face of it, it would appear that receipts exclusive

of the public debt were estimated to exceed expenditures by the sum of \$1,884,002,015, and total receipts to exceed total expenditures by the sum of \$1,646,552,015. Such an outcome, however, is entirely dependent upon Congress' not voting moneys that are not included in the Secretary's calculations. As the Secretary points out, "of course this Department is not in possession of information that would enable it to form an opinion as to the deficiency estimates which may be presented to the Congress, nor as to the additional appropriations the Congress may make." It is certain that these appropriations will amount to large sums and that unless rigid economy is observed by Congress, it will be difficult to make receipts cover expenditures during the two years without increasing taxation or resorting to further borrowings. (See also XIII, *Public Finance*.)

The Victory Loan Act.—Notwithstanding the termination of hostilities, it was imperative that the Government should float during 1919 another large issue of bonds in order to meet expenditures growing out of the war. In fact, several billions of dollars were required to meet short-term obligations of the Government, chiefly in the form of certificates of indebtedness that would mature during the year. On Feb. 10 Secretary of the Treasury Carter Glass addressed to Claude Kitchin, chairman of the House Committee on Ways and Means, a letter in which he pointed out the necessity for such a loan and the desirability of additional legislation if it was to be issued under proper conditions. At the same time he submitted a draft of a bill which embodied the action deemed desirable by him. A bill along the lines advocated was immediately introduced and became law with certain amendments on March 3, narrowly escaping failure as the result of the filibuster in the Senate which marked the end of the Sixty-fifth Congress on March 4. The Act provided that the new loan should be known as the Victory Loan and fixed the total amount of new indebtedness above that already authorized at \$7,000,000,000. An interesting feature of the Act was the repeal of the laws providing for the old

sinking fund, the requirement of which had become a dead letter, and the provision for a new sinking fund to be constituted by annual appropriation of $2\frac{1}{2}$ per cent. of the aggregate amount of bonds outstanding on July 1, 1920, less the amount of money due the United States on account of advances to foreign Governments. The amount of the Victory Loan was fixed by the Secretary of the Treasury at \$4,500,000,000 and the issue took the form of $4\frac{3}{4}$ per cent. short-term notes running for three or four years. The results of the campaign which began on April 21 are given elsewhere (see XIII, *Public Finance*).

The Revenue Act of 1919.—Notwithstanding the urgent appeal of the Secretary of the Treasury that prompt action should be taken on the bill to provide an increased revenue for the national Treasury, the second session of the Sixty-fifth Congress came to an end on Nov. 21, 1918, with that measure still pending in the Senate (*A. Y. B.*, 1918, p. 14). The bill had been originally framed on the basis of producing an annual revenue of \$8,000,000,000. The signing of the armistice on Nov. 11 raised the question as to whether its terms could not be made less drastic. Secretary McAdoo recommended that it be re-drafted on the basis of producing only \$6,000,000,000, and this recommendation was endorsed by the President in his message to Congress of Dec. 2, 1918. The Senate Finance Committee, accordingly, on Dec. 6 reported the House bill modified so as to produce, according to its calculations, a revenue of \$6,000,000,000.

Debate on the bill in the Senate was begun on Dec. 10, the measure being in charge of Senator Simmons, chairman of the Finance Committee. The opposition was led by Senator Penrose, the ranking Republican member of the Committee. The bill was treated as a strictly party measure. Opposition related almost wholly to the provision that sought to fix taxes for 1920 as well as for 1919. The contention of the Republican minority was that the determination of the 1920 rates was a matter that should be handled by the new Congress. The bill passed the Senate on Dec. 23 with a number of important amendments.

Among these was one imposing a tax of 10 per cent. on profits from products entering interstate commerce from mines and quarries employing children under 16 years of age, and from mills, factories, and similar industrial establishments employing children under 14 years, or those between 14 and 16 for more than eight hours daily (see also XV, *Labor Legislation*). This amendment had been drafted jointly by Senators Pomerene of Ohio, Lenroot of Wisconsin, and Kenyon of Iowa, and was designed to replace the child-labor law that had been declared unconstitutional by the Supreme Court (*A. Y. B.*, 1918, p. 465). An exceptionally hard fight was that on the recommendation of the Finance Committee to strike from the measure the schedule of semi-luxury taxes as adopted by the House. The Committee had eliminated all of these. By aligning themselves in the fight, the radicals among the Democrats and Republicans succeeded in overthrowing the action of the Committee, and the taxes were restored to the bill by a vote of 38 to 32. The Senate, however, reduced the luxuries taxes from 20 per cent. as they were in the original House bill, to 10 per cent. This was done by an amendment offered by Senator Lenroot of Wisconsin. The yield under the 10 per cent. tax will be about \$100,000,000. Later in the day the Senate, by a vote of 35 to 17, adopted an amendment to the luxury tax to strike out the tax on men's and boys' suits or overcoats, women's and misses' suits, coats, dresses, and hats.

The bill in conference was the subject of a bitter contest until Feb. 6, when an agreement was finally reached. The more important points of difference between the two houses were those over the rate for war excess-profits taxes, Senate allowances to oil and gas interests, a Senate amendment providing for the repeal of the existing zone system of second-class mail rates, and the reinsertion in the bill by the Senate of the section providing for taxes on so-called luxuries. A compromise was reached in respect to the war excess-profits tax, the Senate amendment for the repeal of the zone system for second-class mail was stricken from the bill,

I. AMERICAN HISTORY

and that for the taxation of luxuries was retained. In his statement to the House in reporting the bill from the conference committee, Mr. Kitchin declared that this latter provision had originally been inserted for the purpose of curtailing consumption rather than to produce revenue and that upon the signing of the armistice the decision was reached to eliminate it. He added that a further effort would be made to repeal this tax by an independent joint resolution.

The bill as agreed upon in conference was finally adopted by both houses and became law on Feb. 24. An unusual feature of the Act was that, though framed for the purpose of raising revenue, it authorized, through a rider attached to it, the payment of two months extra pay to all persons who had served in the military or naval forces of the country during the war. Its detailed provisions are given elsewhere (see XIII, *Public Finance*).

Financing of Foreign Trade.—One of the important financial problems confronting the Government upon the conclusion of the war was that of making provision by which the foreign trade of the United States might be financed. This problem arose through the fact that foreign countries were in debt to the United States for billions of dollars for supplies furnished during the year, that these countries would continue to make large demands upon the products of the United States during the period while they were readjusting their industrial and commercial life, and that these supplies would have to be purchased largely upon credit. If the United States were to continue to export its products to these countries, therefore, it was imperative that provision should be made in some way for extending credit to foreign purchasers.

This situation was met in part by Sections 9 and 10 of the Victory Loan Act of March 3, by which the War Finance Corporation was authorized, "in order to promote commerce with foreign nations," to make advances to an aggregate amount of \$1,000,000,000 to persons, firms, etc., in the United States engaged in exporting therefrom domestic products to foreign coun-

tries, when such persons, firms, etc., were unable to obtain money through ordinary banking channels or on reasonable terms for financing their operations; or to banks and trust companies which might after the passage of the Act make advances to persons to enable them to carry on their exporting business. These advances were to run for not exceeding five years. The advances to individuals, firms, etc., it was provided, should be only for the purpose of assisting in the exportation of domestic products; should not exceed the contract prices of the goods, including insurance and carrying charges payable in the United States; and should bear interest at not less than one per cent. per annum in excess of the discount rate for 90-day commercial paper prevailing at the time the advances were made. These advances might be made until one year after the termination of the war. They were to be made upon the promissory notes of the borrowers guaranteed by such securities as the Corporation deemed necessary. Finally, the date on which the Corporation should begin the liquidation of its affairs was postponed from six months to one year after the ending of the war.

To supplement this provision Senator Walter E. Edge of New Jersey, on July 15, introduced a bill providing for the incorporation under Federal law of companies to engage in foreign trade or the financing of foreign trade. This bill had been prepared in consultation with, and had the endorsement of, the Secretary of the Treasury and the officials of the Federal Reserve Board. As described by its author the bill provided for

the Federal incorporation of one or more concerns to handle the composite commercial-financial business of the American export trade. Not only may such corporations exercise the ordinary banking functions, such as discounting and negotiating notes and drafts, dealing in bills of exchange, and so on, but they actually may advance cash to foreign purchasers of American exports, on such security, say, as a foreign manufacturing plant or similar collateral. . . .

As every step in the transaction would be under the supervision of the U. S. Government through the Federal Reserve Board, such investments would be thoroughly safeguarded, and such debentures should prove an attractive investment to

I. AMERICAN HISTORY

the ever growing hosts of American investors. This bill provides adequate though minimum Government supervision, without Government participation or underwriting or guaranteeing.

On Sept. 9 this bill passed the Senate after having been amended so as to provide that a majority of the members of the boards of directors of the corporations to be created under it should be American citizens. On Nov. 19 it passed the House with certain amendments. Differences between the two houses were adjusted in conference, and the bill became law on Dec. 24. (See also XII, *The Conduct of Business*; and XIII, *Banking and Currency*.)

A National Budget System.—A long step was made towards the placing of the administration of the financial affairs of the National Government upon a budgetary basis by the passage by the House on Oct. 21 of a bill making provision for such a system. This is a reform which has been agitated for a number of years and has been promoted with especial energy by the Institute for Government Research. The platforms of both the Republican and Democratic parties pledged them to the adoption of a budget system. On Feb. 11, 1919, President Wilson sent a cable to Representative Sherley strongly endorsing the proposal. A number of bills and resolutions having this end in view were introduced in both the House and Senate. Among these, that prepared by James W. Good, chairman of the House Committee on Appropriations, attracted much the most attention. On July 31, 1919, the House passed a resolution providing for the appointment of a Select Committee on the Budget, which was directed to take over from other committees all measures bearing upon budgetary reform, make a thorough investigation of the whole subject, and report its conclusions by bill or otherwise. This Committee held formal hearings which lasted almost uninterruptedly morning and afternoon for two weeks. Immediately after the conclusion of the hearings the Committee reported to the House the Good bill for the establishment of a national budget system and a House resolution providing for a change in the rules of that body

so that all jurisdiction over appropriation measures will be vested in a single Committee on Appropriations instead of being scattered among a number of committees as at present. The Good bill provides that all departmental estimates, instead of being submitted directly to the House through the Secretary of the Treasury as a transmitting but non-revising authority, shall be submitted to the President, and that the latter shall examine, revise, and correlate them and submit them in connection with his recommendations in reference to the raising of revenues as his financial and work programme. It also provides for the office of Comptroller-General, who shall be independent of the administrative branch and who shall take over the work now performed by the Comptroller of the Treasury and the six auditors of the Department who are now Treasury officers. The object sought is to do away with the present situation, in which the administration practically audits its own accounts, and to make provision for a system such as exists in most, if not all, modern Governments where expenditures are audited by an independent officer reporting directly to the authority which granted the funds. The bill received almost unanimous approval of the House.

This movement for the adoption of a national budget system received strong support from the President. He gave to it the first place in his annual message to Congress of Dec. 2, in which he said:

I hope that Congress will bring to a conclusion at this session legislation looking to the establishment of a budget system. That there should be one single authority responsible for the making of all appropriations and that appropriations should be made not independent of each other, but with reference to one single comprehensive plan of expenditure properly related to the nation's income, there can be no doubt. I believe the burden of preparing the budget must, in the nature of the case, if the work is to be properly done and responsibility concentrated instead of divided, rest upon the executive. The budget so prepared should be submitted to and approved or amended by a single committee of each House of Congress and no single appropriation should be made by the Congress, except such as may have been included in the budget prepared by the executive or added by the particular committee of Congress charged with the budget legislation.

AMENDMENTS TO THE FEDERAL CONSTITUTION

The Prohibition Amendment.—The subject of national prohibition was up during the year in two aspects, the enactment of legislation to enforce the provisions of the amendment to the Federal Constitution prohibiting permanently the manufacture, transportation, or sale of intoxicating liquor; and the determination of action in respect to the continuance or discontinuance of war-time prohibition.

The national prohibition amendment passed both houses of Congress in December, 1917. On Jan. 16, 1919, ratification by three-fourths of the states was secured by the favorable action of Nebraska, and on Jan. 29 Frank L. Polk, acting Secretary of State, proclaimed the amendment adopted as a part of the Constitution to take effect in accordance with its terms on Jan. 16, 1920. The amendment, known as the Eighteenth Amendment, reads as follows:

SECTION 1. After one year from the ratification of this article the manufacture, sale, or transportation of intoxicating liquors within, the importation thereof into, or the exportation thereof from the United States and all territory subject to the jurisdiction thereof for beverage purposes is hereby prohibited.

SECTION 2. The Congress and the several states shall have concurrent power to enforce this article by appropriate legislation.

SECTION 3. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of the several states, as provided in the Constitution, within seven years from the date of the submission hereof to the states by the Congress.

Notwithstanding the fact that no further action by them was required, all but three of the remaining states formally voted for the adoption of the amendment (see also XIV, *The Liquor Problem*).

Attacks on Ratification.—Immediately upon the proclamation of the definite adoption of the amendment, the fight between the opponents and advocates of prohibition, known colloquially as the "wets" and "drys," entered upon a new phase. The former, speaking through the executive committee of the Distillers' Association of America, at once announced that they would contest in the courts

the validity of the action of a number of states which had ratified. They based their contention upon the fact that the constitutions of several of the ratifying states make provision for a referendum on legislative enactments. In a statement issued by the committee it was declared that:

The constitutions of many of the states contain a referendum provision which expressly provides that no action of the legislatures is effective until the lapse of 90 days after the adjournment of the legislatures. If during those 90 days five or six per cent. of the voters petition for a referendum, the action of the legislatures must be submitted to a vote of the people. Until the people have voted in these states, the action of the legislatures does not take effect, and is neither final nor binding on the state whose legislature may have begun the ratification of the prohibition amendment.

Of the 42 states whose legislatures have acted, there are 22 that contain in their constitutions the referendum provision. Of these 22 states, the legislatures of 14 are still in session, and until these legislatures have adjourned, the 90 days within which to petition for a referendum have not begun to run. Immediate steps will be taken to have the referendum invoked in all of these 14 states and probably in others. Until the people in these 14 states have had an opportunity at a general election or a special election called for that purpose to vote upon the amendment, the amendment lacks ratification. Upon this question the opinion of eminent lawyers is unanimous.

The people in these 14 states, under their constitutional referendum rights, are a part of the lawmaking body. Until they have voted upon the proposition, there has been and can be no legislative action. If the 14 states be deducted from the 42 states whose legislatures have acted, the total number of ratifying states will be but 28, or eight less than the required three-fourths.

On the other hand, the "drys," represented by one of the most efficient propaganda and legislative organizations the country has ever seen, under the general direction of the Anti-Saloon League of America, announced their plans for securing of drastic legislation both by Congress and the separate states that would make the country "bone-dry."

In respect to the "wets'" contention, it is evident that the vital point was what was meant by the word "legislatures" in the clause of the Federal Constitution which provides that proposed amendments shall be referred for ratification to the legis-

latures of the several states. A further point was made by the liquor interests that the section conferring concurrent powers upon the states to enact legislation for the enforcement of a provision of the Federal Constitution was so in violation of the fundamental principles of the Constitution as a whole in respect to the division of powers between the National Government and the states as to render the amendment invalid on general constitutional grounds. That the provision was a great departure from prior practice no one can question, but this hardly carries with it any taint of invalidity.

War-Time Prohibition.—The Food and Fuel Control Act of Aug. 10, 1917, conferred power upon the President to prohibit the use of grain, fruits, and other food products for the production of distilled spirits for beverage purposes. During the passage of the Food Stimulation Act of Nov. 21, 1918, the prohibition interests secured the incorporation of a rider prohibiting "after June 30, 1919, until the conclusion of the present war and thereafter until the termination of demobilization, the date of which shall be determined and proclaimed by the President of the United States," the sale of distilled spirits, beer, wine or other intoxicating malt or vinous liquors for beverage purposes except for export, and after May 1, 1919, the use of grains, cereals, fruits or other food products for the manufacture or production of beer, wine, or other intoxicating malt or vinous liquors for beverage purposes. It further provided that after the date of the approval of the Act no distilled malt, vinous, or other intoxicating liquor should be imported into the United States during the continuance of the war and the period of demobilization. Violation of any of the foregoing provisions was made punishable by imprisonment of not exceeding one year, or by fine not exceeding \$1,000, or by both imprisonment and fine.

These provisions gave rise to a number of questions which excited much difference of opinion both inside and outside of Congress. These were: what alcoholic content was necessary in order that a beverage

should be deemed to be intoxicating; what authority of the Federal Government should assume responsibility for the enforcement of the law; and when demobilization should be deemed to have been completed. Upon the termination of hostilities a determined effort was made to repeal wholly this war-time prohibition, which would postpone nation-wide prohibition until the coming into effect of the prohibition amendment on Jan. 16, 1920. In respect to the first point the situation was much confused by the courts' taking different attitudes as to what was known as 2.75 per cent. beer in different states. The situation was made somewhat clearer by the following statement by Attorney-General Palmer on June 30:

After to-day, it will be unlawful to sell for beverage purposes any distilled spirits and any beer, wine, or other intoxicating malt or vinous liquor, except for export. This prohibition will continue under the terms of the law "until the conclusion of the present war and thereafter until the termination of demobilization." As long as the law thus remains in force, it must be obeyed, and I intend that the Department of Justice shall do its utmost to perform the duty which the Congress has placed upon it.

This law has been held to be constitutional and valid by the Circuit Court of Appeals, sitting in New York. It plainly makes unlawful the sale of whisky, brandy, and other distilled spirits and wine. The only controversy that has arisen is as to whether the sale of beer containing so little alcohol as not to be in fact intoxicating is prohibited. The Government's contention has been that the Act prohibits the manufacture and sale of beer containing as much as one-half of one per cent. of alcohol, but the interpretation of the Act is not free from difficulty, and I am endeavoring to have the question settled by the courts at the earliest possible moment.

My course with respect to beer containing less than 2½ per cent. of alcohol—which it is claimed is not intoxicating—will depend upon the rulings which will soon be made by the district courts in which cases are now pending or in which other cases may be brought. I have no power to grant amnesty to any one who may see fit to manufacture or sell beer pending an authoritative judicial construction of the law, and I am sure that brewers and dealers generally understand that the pendency of litigation will be no protection against prosecution for offenses under the law.

But with respect to whisky, brandy, and other distilled spirits, wine, and beer containing more than 2½ per cent. of alcohol, and other intoxicating malt or vinous liquors, the prohibition is beyond controversy, and but one course is open to the Department of Justice. All persons found

selling such liquors must be arrested and prosecuted. The district attorneys will cause warrants to be issued for all offenders as to whom evidence is furnished by the Bureau of Investigation, the agents of the Internal Revenue Bureau of the Treasury Department, local officers, or others, and the marshals and their deputies will promptly serve such warrants.

With the cooperation of local authorities, it is believed that the law can be made effective. For this reason, I call attention to the fact that it is the duty of local arresting officers to make arrests for offenses committed in their presence, whether the offense be against the laws of the state or the laws of the United States.

Upon Congress' refusal to repeal the law providing for war-time prohibition, the efforts of the "wets" were concentrated upon the President to induce him to lift the ban on the ground that the war was over and that demobilization was in effect complete. This the President refused to do, taking the position that he did not have the necessary legal authority. On July 28 he gave to the public the following cablegram:

I am convinced that the Attorney-General is right in advising me that I have no legal power at this time in the matter of the ban on liquor. Under the act of November, 1918, my power to take action is restricted. The Act provides that after June 30, 1919, "until the conclusion of the present war and thereafter until the termination of demobilization, the date of which shall be determined and proclaimed by the President, it shall be unlawful, etc." This law does not specify that the ban shall be lifted with the signing of peace, but with the termination of the demobilization of the troops, and I cannot say that this has been accomplished. My information from the War Department is that there are still a million men in the Army under the emergency call. It is clear, therefore, that the failure of Congress to act upon the suggestion contained in my message of the 20th of May, 1919, asking for a repeal of the Act of Nov. 21, 1918, so far as it applies to wines and beers, makes it impossible to act in this matter at this time. When demobilization is terminated, my power to act without Congressional action will be exercised.

Prohibition Enforcement Act.—In Congress the decision was reached to handle in one bill the matter of providing for the enforcement of both the war-time prohibition sections of the Food Stimulation Act and the constitutional amendment. The President in his message to Congress of May 20 had recommended the repeal of the former. He stated that: "The demobilization of the military forces of the country has progressed to such

a point that it seems to me entirely safe to remove the ban upon the manufacture and sale of wines and beers, but I am advised that without further legislation I have not the legal authority to remove the present restrictions." The President was led to this recommendation by various motives, among which may be mentioned the need for the revenue that would accrue to the national Treasury and the grant to liquor dealers and manufacturers of an opportunity to dispose of their product and thus protect themselves against loss. He further claimed that the measure had been enacted to meet war conditions, and as those conditions had largely passed away, there was no justification for its further retention. The "drys" however, were firmly entrenched, and this proposition at no time stood any chance of favorable action.

On May 27 Representative Volstead of Minnesota, chairman of the House Judiciary Committee, introduced a bill providing for the enforcement of prohibition in all its phases. It was a very drastic measure and followed closely the programme that had been elaborated by the Anti-Saloon League. The bill became the subject of prolonged and at times acrimonious debate. On July 8 the Committee on Rules reported an order granting 12 hours of general debate. Following this the bill was taken up for amendment. Numerous amendments were proposed, all looking to lessening the "drys," however, were at all times in severity of the bill's provisions. The control of the situation and defeated all such proposals. An especially hard but unsuccessful fight was made upon an amendment which would define an intoxicant as a beverage containing 2.75 per cent. of alcohol instead of one per cent. as provided by the bill. On July 22 the bill passed the House substantially as reported by the committee, the vote being 287 to 100. Party lines disappeared completely in the fight. On Sept. 5 the bill passed the Senate after being made more liberal in a number of respects. It thus permitted the domestic manufacture of wines, cider, etc., for purely personal consumption and protected the owners of liquors in their possession. The bill then

I. AMERICAN HISTORY

went to conference, where an agreement was finally reached which was confirmed by the Senate on Oct. 8 and by the House on Oct. 10. On Oct. 27 the President vetoed this bill. In his veto message he said:

The subject matter treated in this measure deals with two distinct phases of the prohibition legislation. One part of the Act under consideration seeks to enforce war-time prohibition. The other provides for the enforcement which was made necessary by the adoption of the constitutional amendment. I object to and cannot approve that part of this legislation with reference to war-time prohibition.

It has to do with the enforcement of an Act which was passed by reason of the emergencies of the war and whose objects have been satisfied in the demobilization of the Army and Navy and whose repeal I have already sought at the hands of Congress. Where the purposes of particular legislation arising out of war emergency have been satisfied, sound public policy makes clear the reason and necessity for repeal.

Two hours after the President's veto message had been received by the House the latter passed the bill over his veto by a vote of 176 to 55. The Senate followed on the next day by a vote of 65 to 20, and the bill became law notwithstanding the President's veto. (See also XVI, *The Liquor Problem*.)

A number of cases were brought in the Federal courts to test the validity of this Act. On Dec. 15, however, the U. S. Supreme Court handed down a unanimous decision, Justice Brandeis writing the opinion, sustaining the constitutionality of the war-time prohibition legislation.

The Woman Suffrage Amendment. On Jan. 10, 1918, the House passed by the necessary two-thirds vote a resolution providing for the submission to the states of an amendment to the Constitution to confer upon the women of the country equality of right to vote with men.

SECTION 1. The right of the citizens of the United States to vote shall not be denied or abridged by the United States or by any state on account of sex.

SECTION 2. Congress shall have power by appropriate legislation to enforce the provisions of this article.

After long delay in taking up this resolution for consideration, the Senate on Sept. 27, 1918, defeated it, the vote being 53 to 31, or less than the required two-thirds vote (*A. Y. P.*,

1918, p. 20). Upon the convening of the Sixty-fifth Congress in its third session on Dec. 2, 1918, President Wilson again urged in strong terms that the demand of the women for the right to vote be granted. After paying tribute to their services during the war he said:

The least tribute we can pay them is to make them the equals of men in political rights as they have proved themselves their equals in every field of practical work they have entered whether for themselves or their country. These great days of completed achievement would be sadly marred were we to omit that act of justice.

On Feb. 10, 1919, the amendment was again brought to a vote in the Senate and again defeated, notwithstanding the fact that the President had cabled from Paris urgently appealing for its support, the vote being 55 to 29. This represented the last chance for the Democrats to gain the political advantage of standing sponsor for this action. Opposition to the resolution came largely from the South, whose representatives stood upon the principle of state rights that this was a matter which should be determined by the states acting individually. In so holding the Southern Senators quoted the words of President Wilson as late as 1916 that this was the correct principle.

Upon the convening of the Sixty-sixth Congress on May 20, the President again renewed his recommendation that the right of suffrage be conferred upon the women. He said:

It seems to me that every consideration of justice and of public advantage calls for the immediate adoption of that amendment and its submission forthwith to the legislatures of the several states. Throughout all the world this long-delayed extension of the suffrage is looked for.

The matter then received immediate attention. The resolution calling for the amendment passed the House on May 21 as its first legislative enactment, the vote being 304 to 89; the opposition was composed of 70 Democrats and 19 Republicans. The Senate in turn on June 7 passed the resolution by a vote of 56 to 25. The amendment then went to the states for their ratification. The progress of ratification is recorded elsewhere. (see V, *Popular Government*).

NATIONAL CAMPAIGN AGAINST RADICALISM

Radical Propaganda.—It was but natural that the Government should look with apprehension upon the possible extension to this country of the radical agitation which had appeared in Russia, Germany, and other countries. In the United States this radicalism, which not only sought to subvert the existing industrial system of the country but advocated violent methods to attain this end was manifested chiefly in the activities of those who were sympathetic with the Bolshevik régime in Russia and sought to promote a similar movement in this country, and the so-called radical labor element which advocated direct action as opposed to the more conservative efforts of labor organizations as represented in the American Federation of Labor. These two radical elements were represented in the two national organizations of the Federation of the Union of Russian Workers and the Industrial Workers of the World. Throughout the year the activities of both these organizations were very much in evidence, and the Government, acting chiefly through the Department of Justice and the Post Office Department, devoted a great deal of attention to efforts to counteract the results of their propaganda. In these efforts the Government had to rely chiefly on the Espionage Act and laws prohibiting the use of the mails for the distribution of improper publications.

Convictions under the Espionage Act.—A portion of the community believed that the Espionage Act had been enforced with too great severity against persons who had committed no overt acts against the Government but merely held convictions of a radical character. On March 1 Attorney-General Gregory, as one of his last acts before leaving office, addressed a letter to the President recommending the commutation of the sentences of a number of persons who had been convicted of offenses against the Act. He refused, however, to recommend anything in the nature of the grant of a general amnesty to offenders of this class. On April 11 A. Mitchell Palmer, the new Attorney-General, sent to the President recommendations

for clemency in the case of 52 other persons who had been convicted under the Act. In making these recommendations, which were based on a special investigation of all convictions, the Attorney-General published an interesting statement regarding the activities of the Department of Justice in enforcing the Act, from which the following is taken:

I desire to call attention to the exaggerated figures which are being used by persons agitating for what is called a general amnesty to political prisoners; so exaggerated, in fact, that I cannot help suspecting the overstatement to be deliberate.

When this investigation of the Espionage Act cases began about two months ago, the total number of persons confined in jails and penitentiaries for violation of the Espionage Act was only 239. Of these the sentences of 55 have since expired and five have been paroled, leaving only 179 now in confinement. In about 30 of these cases the sentences have already been commuted, and I have now recommended commutations in 52 more. These figures do not include the I. W. W. group cases in Chicago and California, which would add 121 to the number. Of these, many, however, have recently been released on bail.

There are no men in prison because of the expression of their views on social, economic, or political questions, including the war. Besides, the above figures do not all represent men prosecuted for what they said or published. Many obstructed the draft in other ways, as for instance, by armed resistance, by stirring up fraudulent claims for exemption from military service, and other methods. In fact, many of them violated the selective-service law as well as the espionage law.

It thus appears that current statements to the effect that there are 1,500 political prisoners in the penitentiaries and jails of this country are the result of either frenzied imagination or deliberate intent to deceive the public.

Bomb Conspiracies.—On June 3 the country was startled by what was apparently a general attempt on the part of anarchists and other radicals, believed to be closely associated with the Bolshevik and I. W. W. propaganda, to murder a large number of prominent persons by means of bombs sent through the mails. Among the men so marked for destruction were Attorney-General Palmer, Postmaster-General Burleson, Justice O. W. Holmes of the U. S. Supreme Court, Judge Landis of Chicago, and Mayor Ole Hanson of Seattle. By accident most of the bombs were discovered in

the mails and intercepted. The bomb intended for Attorney-General Palmer, however, was carried to his house and exploded on his doorstep. The front of the house was shattered, but no one in it was severely injured. The person throwing the bomb was blown to pieces, the bomb apparently having been prematurely exploded. Although a rigid investigation of the plot was at once entered upon, it does not appear that its perpetrators were ever discovered.

Arrests and Deportations.—

Throughout the year numerous arrests were made of persons believed to be guilty of violating the Espionage Act or of conspiring to overthrow the Government or to resist legal authorities by force. On Nov. 7 simultaneous arrests were made of more than 250 officers and members of radical organizations in 12 different cities of the United States upon warrants issued by the Secretary of Labor charging them with advocating the overthrow of the Government of the United States by force and violence. Evidence was overwhelming that the radical element in the community was largely made up of foreigners, and efforts were made to take advantage of the law authorizing the deportation of persons who had come into the country in violation of the immigration laws. On June 10 Judge Hand in the U. S. District Court of New York dismissed writs of *habeas corpus* sued for in the cases of all but one of 61 agitators who had been brought to Ellis Island from Seattle for deportation, holding that the Government had the authority to deport them. Notwithstanding this, it appeared that Frederic C. Howe, Immigration Commissioner at New York, had not proceeded vigorously in the deportation of these and other objectionable persons, and eventually Mr. Howe, resigned, at the request, it was believed, of the Department of Labor. In December an investigation by the House Committee on Immigration elicited testimony seriously reflecting upon the immigration service at New York under his administration. On Dec. 21 the U. S. transport *Buford* sailed from New York with 249 deported anarchists, including Alexander Berkman and Emma Goldman.

Activities of the Department of Justice.—Attorney-General Palmer, who had been especially energetic in seeking to combat the development of radicalism in the country, declared that in his opinion the laws on the statute books were inadequate and that additional legislation was required. On Nov. 14, in response to a Senate resolution introduced by Senator Poindexter and adopted on Oct. 17, he submitted to Congress a statement regarding the activities of his Department in seeking to suppress radicalism and the character of additional legislation that should be enacted to strengthen his hands. The Attorney-General held that the Espionage Act had been enacted as a war measure and in his opinion was not applicable to the post-war period, this opinion being sustained by test cases in the courts. He said further:

Taking up and considering the different classes of alleged radical activities as set forth in the resolution in the light of existing criminal statutes (exclusive of the Espionage Act) I beg to advise you:

(1) Those who have attempted to bring about the forcible overthrow of the Government of the United States have committed no crime unless their acts amount to treason, rebellion, or seditious conspiracy. This is defined in Sections 1, 4, and 6 of the Criminal Code above quoted.

(2) The preaching of anarchy and sedition is not a crime under the general criminal statutes of the United States.

(3) Advising the defiance of law is not a crime under the general criminal laws, whether the same be done by printing and circulating literature or by the spoken word.

(4) Nor is advising and openly advocating the unlawful obstruction of industry and the unlawful and violent destruction of property a crime under the United States general statutes.

I might state that this opinion has been formed by me only after consultation with and advice from the leading criminal lawyers of the country.

To meet this situation he submitted a draft of a bill, entitled, "A Bill defining sedition, the promotion thereof, providing punishment therefor, and for other purposes," the adoption of which by Congress he strongly urged.

In describing the activities of his Department Mr. Palmer stated that he had cooperated with the Department of Labor in the enforcement of the law governing the deportation of undesirable aliens. To this end he had created a special division in his

I. AMERICAN HISTORY

office which had made a more or less complete history of over 60,000 radically inclined individuals in the country. Especial attention had been given to the activities of the organization known as the Federation of the Union of Russian Workers. The statement also called attention to the extent to which a radical propaganda was being carried on in the United States through the publication of special newspapers urging direct action, the adoption of the soviet principle, and other steps of a like extreme character. He stated that there were 222 radical newspapers published in foreign languages in this country and 106 radical newspapers published in the English language. In addition, there were 144 radical newspapers published in foreign countries which were received and distributed to subscribers in the United States. Finally, there were being published and distributed hundreds of books, pamphlets, folders, and the like devoted to stirring up discontent with existing political and social conditions and advocating radical action. All of these radical publications were read and translated by the Department of Justice in cooperation with the Post Office Department. Many of these publications were denied the use of the mails but were put in circulation through being sent to different points by express and subsequently distributed by hand. Mr. Palmer declared "a large number of these papers openly advocate the destruction of the United States Government and encourage and advise their readers to prepare for the coming revolution." Many of the papers carried no advertisements, this establishing the fact that they were being supported by money received from outside sources to further their propaganda.

In his annual report the Attorney-General again showed that the Federal statutes were exceedingly limited as affecting persons of American citizenship engaged in radical agitation.

Legislation.—The matter of additional legislation to combat radicalism received a great deal of attention in both houses of Congress. It took the form of bills extending for one year the war-time regulations on the issue of passports and bills restricting immigration generally (see also XIV, *Immigration*). The former of these two proposals was finally enacted in law. The broad Sedition bill urged by the Attorney-General was introduced in Congress, but final action on it was not had during the year. Both houses through appropriate committees made investigations of radical propaganda in the country at which information of value was developed. Bearing on this subject, Mr. Phillips, Assistant Secretary of State, sent to the Senate Committee on Military Affairs an interesting letter justifying the policy of the Government of non-intercourse with Bolshevik Russia (see also II, *International Relation*). One of the two chief reasons alleged he defined as follows:

It is the declared purpose of the Bolsheviks in Russia to carry revolution throughout the world. They have availed themselves of every opportunity to initiate in the United States a propaganda aimed to bring about the forcible overthrow of our present form of government. They have at their disposition in Russia a large quantity of gold, being partly a revenue of the former Russian gold reserve and partly a reserve of gold belonging to the Rumanian Government which was stored in Moscow for safekeeping at the time of the German advance into Rumania. It is considered important that the Bolsheviks should not be given the means through commercial transactions to bring this gold into the United States, where it could be used to sustain their propaganda of violence and unreason.

MISCELLANEOUS

National Domain Bills.—For some years earnest efforts have been made to put through Congress bills relative to the effective utilization of the resources of the national domain. A bill known as the "Shields Water bill" passed the Senate during the second session of the Sixty-fifth Congress in spite of the strong opposition

of so-called progressive conservationists. In the House this bill underwent a number of important changes, the purport of which was to vest supervision in one Federal Water-Power Board of all water utilization projects; to require that leases of power sites should be signed for not less than 50 years; to provide for the

right of recapture of the properties by the Government at their original valuation; and to set up other measures for protecting the public interest. In this form the bill passed the House and went to conference where it stayed from Sept. 20, 1918, to Feb. 26, 1919, the managers of the two houses being deadlocked. A compromise was finally reached, and the bill was reported from conference on Feb. 28 and agreed to by the House by a vote of 263 to 65. In the Senate it failed to pass through the filibuster which brought the Sixty-fifth Congress to an end. On May 26 Mr. Esch, chairman of a Select Committee on Water Power, introduced in the new Congress a bill following closely the provisions of the Shields bill. This bill was favorably reported to the House on June 24, passed that body on July 1, and was favorably reported with certain amendments by the Senate Committee on Commerce on Sept. 12. The preoccupation of the Senate with the Peace Treaty prevented its consideration by that body.

A second measure that has long been before Congress is one providing for a system for leasing Government lands containing coal, oil, phosphate, or other minerals. Bills having this purpose passed both the Senate and the House during the Sixty-fifth Congress and went to conference. The committee on Feb. 18 made its report, which was adopted by the House by a vote of 232 to 109. The Senate, however, on Feb. 27 refused to accept the measure and sent the bill back to conference, where it remained when the Sixty-fifth Congress came to an end on March 4. On Aug. 15 Senator Smoot reported from the Committee on Public Lands a measure following closely the bill that had failed of passage. After a prolonged debate, during which it was amended in certain particulars, the bill was passed by the Senate on Sept. 3. On Oct. 21, it was favorably reported by the House Committee on Public Lands and on Oct. 30 passed that body. The bill then went to conference, where it remained on the adjournment of Congress for the Christmas holidays.

A measure strongly urged by both Secretary Lane of the Department of the Interior and President Wilson,

both in 1918 and 1919, was one providing for the inauguration of a vast project for the reclamation by the Federal Government of arid, swamp, and cut-over lands. This project was brought forward by Secretary Lane and was urged by him both as a desirable measure in itself and as one furnishing the most effective means of caring for the returned soldiers. In the House it had as its strongest supporter the Republican floor leader, Mr. Mondell of Wyoming, who introduced a bill to put it in effect, entitled: "A Bill to provide employment and rural homes for those who have served with the military and naval forces through the reclamation of lands, to be known as the National Soldier Settlement Act." The bill authorized an appropriation of \$500,000,000 to be used as a Soldier Settlement Fund under the supervision of the Secretary of the Interior for the purpose of acquiring and reclaiming lands which would be made available as rural homes and farm tracts for persons discharged from the military and naval forces and for the further purpose of providing employment for such persons in connection with development work on projects under the bill. The President strongly recommended favorable action on this bill in his message to Congress of Dec. 2, 1918.

It was favorably reported by the House Committee on Public Lands, of which Mr. Mondell was chairman, on Aug. 1. Strong opposition developed on account of the large expenditure involved. The Republicans refused to make it a party measure, and both parties were sharply divided in respect to it. Due to the opposition encountered, the bill has not been pushed.

Repeal of Daylight Saving.—On Aug. 20 the Daylight Saving Act of March 19, 1918, was repealed by an Act which Congress passed over the President's veto. The demand for its repeal came almost wholly from the farmers. There seems to have been a general feeling on the part of the urban and industrial population that the operation of the Act was wholly beneficial and undoubtedly resulted in substantial economy. A rider providing for repeal was attached by the

Senate to the Agricultural Appropriation bill, which was accepted by the House. This bill the President vetoed on account of this rider. In his veto message he said:

I believe that the repeal of the Act referred to would be of very great inconvenience to the country, and I think that I am justified in saying that it would constitute something more than an inconvenience. It would involve a serious economic loss.

The attempt to pass the Agricultural bill with the repeal rider attached failed in the House owing to the failure of the Republican floor leader, Mr. Mondell, to hold his forces in line. Thereupon a special repeal bill was introduced, which went through both houses in August but was vetoed by the President. It was, however, immediately passed over the President's veto by the necessary two-thirds vote in both houses and became law on Aug. 20. (See also XVI, *Agricultural Legislation*.)

Request of the Filipinos for Independence.—Early in the year a delegation of 40 prominent Filipinos, headed by Manuel Quezon, president of the Philippine Senate, came to the United States for the purpose of presenting to the Government a memorial that had been adopted by both houses of the Philippine legislature requesting that complete independence be granted to the Islands. In the absence of the President this memorial was presented to Secretary of War Baker on April 4. In reply the latter not only assured them of his approval of their request, but read to them a letter from the President, who had been apprised of their prospective visit, in which he stated that he too was in favor of the immediate grant to the Philippines of complete independence. In this letter he said that it was his hope that "their mission will be a source of satisfaction to

them and that it will result in bringing about the desirable ends set forth in the joint resolution of the legislature approving the sending of the commission to the United States." The Secretary of War in his response made this even more emphatic:

I know that I express the feelings of the President, I certainly express my own feelings, I think I express the prevailing feeling in the United States when I say that the time has substantially come, if not quite come, when the Philippine Islands can be allowed to sever the more formal political tie remaining and become an independent people. . . . I am myself in favor of Philippine independence. I trust the day is very close at hand when it can be formally accomplished.

Although the memorial was brought to the attention of Congress, the leaders of the Republican Party decided that nothing should be done in relation to it.

The Colombian Treaty.—In July it was announced by the Senate Committee on Foreign Relations that the objections to the Colombia Treaty providing for the payment to the Colombian Government of \$25,000,000 in settlement of all claims arising out of the securing by the United States of the land for the construction of the Panama Canal had been met and that favorable action on the Treaty would be recommended. The Committee reported the Treaty on July 29, nearly five years after it had been submitted to the Senate by President Wilson. Objection, however, was immediately raised against acting on the Treaty until assurance could be had that Colombia would adequately protect American oil interests in her territory that were apparently injuriously affected by a recent decree of the Colombian Government. On this account action was postponed and no further steps were taken in relation to the Treaty during the year.

POLITICS AND PARTIES

JAMES ALBERT WOODBURN

General Political Conditions.—The year 1919 in politics was one of anticipation and preparation. The year before a Presidential contest is always one of minor importance in party history. What was done or designed had steadily in view the great contest

and campaign of 1920. In such a pre-political year relatively few events occur worthy of record.

The year opened with President Wilson, the head of the Administration and the official leader of the Democratic Party, absent from the country,

1. AMERICAN HISTORY

absorbed in the great task of helping the representatives of other nations to agree upon the terms of world peace. With such important international issues impending, very little attention could be given by the people or their leaders to questions of domestic or party politics.

On March 4 the Republicans became the dominant Party in both houses of Congress. Senator Lodge of Massachusetts became the party leader in the Senate, Mr. Gillett of Massachusetts was elected Speaker of the House, and Mr. Mondell, of Wyoming, became the floor leader of the House. Thus the two floor leaders in Congress were assigned to the "Old Guard" faction of the party. With the exception of the Speakership, for which the senior member, Mr. Mann of Illinois, was defeated, the rule of seniority was strictly observed by the Republicans in organizing the House. Mr. Mann, the defeated candidate for Speaker, was allowed to name the Committee on Committees, which resulted in the same make-up of the committees that would have followed his election as Speaker. This result was not received very favorably by the "Progressive" element of the Republican Party, who were not pleased to see legislative power in the House largely concentrated in the Committee on Committees and the Steering Committee, both of which Committees had been put chiefly into the control of Mr. Mann. This was looked upon by the Progressives as a reaction toward "Canonism." (See also *Organization and Work of Congress, supra.*)

The Peace Treaty and the League of Nations.—Generally both parties in the state conventions that were held during the year favored the early ratification of the Peace Treaty together with the League of Nations. The eminent Republican leaders of the country, Mr. Taft, Mr. Hughes, and Mr. Root, favored the entrance of the United States into the League, with modifications and reservations, and made constructive suggestions while the Treaty was in process of formation. Republicans usually demanded "unequivocal and effective reservations, to safeguard the interests of the United States." The Massachusetts Republicans commended Senator

Henry Cabot Lodge for "broad and far-sighted statesmanship in his efforts to bring about prompt action on the Treaty." A declaration favorable to the League was made by the Republicans of South Dakota. It could not be seen that the League of Nations cut any figure as an issue in the elections in any of the states. The voters expressed themselves on domestic and state issues only. (See also *The Treaty of Peace, supra.*)

The Elections.—Governors were elected in November in five states, Kentucky, Maryland, Massachusetts, Mississippi, and New Jersey. Mississippi need not be considered, as there are no party contests in that state. In Maryland there were internal troubles among the Democrats, but the Party was enabled to elect its candidate for governor, Mr. Ritchie, by the narrow margin of 165 votes, owing to his plurality in Baltimore; the Republicans carried the counties outside of that city. In New Jersey the Democratic candidate, Mr. Edwards, was elected by a plurality over his Republican opponent of 14,000 votes. Mr. Edwards had declared himself against the Federal prohibition amendment, saying that so far as his powers as governor went, he would be pleased to help make New Jersey as "wet as the Atlantic Ocean." In Kentucky the Republicans elected their candidate for governor, Edwin P. Morrow, by a plurality of over 40,000. In Nebraska there were elections of delegates to a constitutional convention in which the conservatives won over the radical and Non-Partisan League candidates by very decisive majorities. In New York State the Republicans made large gains in the election of members of the state legislature and in the municipal elections throughout the state. In New York City there was a sweeping anti-Tammany victory.

The Socialists in New York City polled 125,000 votes, as against about 85,000 the year before for the Socialist candidate for governor, the vote of 1919 coming within 20,000 of the record vote for Morris Hillquit for mayor in 1917, when the Socialists had the support of many anti-war and anti-draft voters. At a special Congressional election in Milwaukee on

Dec. 19, Victor Berger, Socialist, was reelected to Congress after having been denied his seat by an almost unanimous vote of the House, there being only one vote in his favor (see also *Organization and Work of Congress, supra*). Berger was under indictment for disloyal acts at the time of his election in 1918 and was afterwards found guilty on the indictment. His reelection was brought about in face of a combination on a single candidate of Democrats and Republicans against him, an event which seems to add, from the old party standpoint, to the uncertainties and complexities of 1920.

A more encouraging sign from this point of view attaches to the fall election in Massachusetts, the interest and importance of which assume first place in the year's election results. Here Governor Coolidge, Republican, received a majority over Richard H. Long, his Democratic opponent, of 124,000, in a total vote (520,000) but 6,000 short of the Presidential vote in 1916. An event quite unusual was the telegram of congratulation sent by President Wilson, the official leader of the Democratic Party, to Governor Coolidge congratulating him upon his election "as a victory for law and order." "When that is the issue, all Americans stand together," said the President. Governor Coolidge had acted vigorously against the striking policemen in Boston early in September (see XV, *Labor*). He treated the strikers as mutinous and refused to allow their reinstatement. Mr. Long, his opponent, appealed for support to class feeling, to labor prejudice, and to the striking policemen, many of whom worked actively for his election. Governor Coolidge's reelection by such a decisive vote brought him considerable prestige throughout the country, and he began to be spoken of as a Presidential possibility; but as in the Massachusetts voting party lines were largely dissolved or disregarded, no particular significance attached to the result.

A New Labor Party.—Considerable significance attaches to the movements of minor parties and to liberal and radical agitation through the year, as indicating social unrest and a tendency toward a dissolution of

party lines and party ties. Much interest has centered on the probable plans of the labor forces for the next campaign. The prospect that both the Democratic and Republican Parties would favor a conservative platform has led certain labor leaders to urge the launching of a Labor Party similar to the one in Great Britain, in order to offer to the voters a distinctly different programme looking toward liberalism or radicalism, offering positive policies calculated to promote real changes in our political and economic life. In consequence of this feeling a new National Labor Party was formally created in Chicago on Nov. 24. Plans were laid for the coalition of this new party with the Non-Partisan League (*A. Y. B.*, 1918, p. 30), the Committee of Forty-eight (see *infra*), and several independent farmers' organizations, and the absorption of one or two of the existing radical parties, presumably the Socialists and the Communist Party (see XIV, *Socialism*), into one great political movement in the hope of carrying the next Presidential election. At least, it is the hope of the radical leaders that the new party movement may prove so formidable that the conservative elements of the two old parties may be led to coalesce as a means of preventing the success of the independent movement, and that then the country will be divided along rational political lines between a Liberal and a Conservative Party. It is claimed by the adherents of the Non-Partisan League that that movement would carry the next election in Minnesota, and that even if the Republicans and Democrats should unite on a fusion ticket, they would be defeated. The new Labor Party, therefore, proposes to do every thing possible to bring the Non-Partisan League, the Committee of Forty-eight, and other independent movements into unison, and this combination, together with the farmers' organizations and railroad brotherhoods, would present a promising independent prospect. It is needless to say that such a combination would cause considerable alarm in the old party camps.

The Labor Party announced as the object of its being "to organize all hand and brain workers of the

country to support the principles of a political, social, and industrial democracy." Among the resolutions adopted by the conference at Chicago were demands for the equal representation of women in the management of affairs; for the impeachment of Judge Anderson of Indianapolis for his action in granting the mandatory injunction against the coal miners in their strike (see *The National Government and Labor, supra*); for the initiative and referendum in national legislation; for the release of Eugene V. Debs and other "political prisoners" (see XIV, *Socialism*); for the repeal of the Espionage Act, and other repressive war Acts; and for the revision of Army court-martial laws (see *National Defense, supra*). Committees were appointed to promote the union of the Labor Party with other discontented elements—the various Adullamites in politics. (See also XV, *Labor*.)

The Committee of Forty-eight.—A conference of liberals was held in St. Louis on Dec. 10–12 at the call of a "Committee of 48" for the purpose of formulating and presenting to the American people a programme of political action, "honest, workable, and fundamental." This Committee of 48 had been organized in New York City in the summer of 1919, from a feeling of dissatisfaction with the political leadership of the old parties and with the political and economic situation of the country. This feeling of dissatisfaction and unrest had sprung from the conviction that the Government had failed to reduce the high cost of living, from the fact that "great numbers of American citizens live in want or fear of want" in spite of the country's immense wealth, and from "the growing control of basic resources and industries by trusts." The dissentients hold that "there can be no relief through the two old political parties, since both are controlled by the same economic forces constituting an invisible government not representative of the people, and that the present two-party system leaves the country with no adequate political opposition." The leaders of this Conference, a group of "intellectuals" made up of lawyers, students, and writers, asserted that the

country is governed by a political monopoly, that America has reached a deadlock of democracy, and that new channels should be opened up through which the fundamental demands of the popular will may find expression in political action. The conference submitted to the public the following programme or platform of three planks, "in the interest of all, irrespective of class, race, sex, or creed, as a means of uniting for independent political action various groups of citizens":

(1) Public ownership of transportation, including stockyards, large abattoirs, grain elevators, terminal warehouses, pipe lines, and tanks. Public ownership of other public utilities and of the principal natural resources, such as coal, oil, natural gas, mineral deposits, large water powers, and large commercial lumber tracts.

(2) No land (including natural resources) and no patents to be held out of use for speculation to aid monopoly. We favor taxes to force idle land into use.

(3) Equal economic, political and legal rights for all, irrespective of sex or color. The immediate and absolute restoration of free speech, free press, peaceable assembly, and all civil rights guaranteed by the Constitution. We demand the abolition of injunctions in labor cases. We indorse the effort of labor to share in the management of industry and labor's right to organize and bargain collectively through representatives of its own choosing.

Action was taken looking to union with the Labor Party, the Non-Partisan League, and the railroad brotherhoods.

The Prohibition Party.—The National Committee of the Prohibition Party, meeting in Chicago on Sept. 2, announced that the Prohibition Party would maintain its separate existence during 1920. This means there will be a national convention of the party, which is to be held after the larger parties have held theirs, in order that the Prohibitionists may know what the positions of the "old parties" will be on "honest dry legislation," in conformity with the prohibition amendment. It will then be determined whether the enactment and enforcement of laws making effective the Federal prohibition amendment will complete the purpose of the Party, or whether the Party should maintain its organization for world work. Some consideration was given to a change in the Party name.

I. AMERICAN HISTORY

The Republican National Committee.—The Republican National Committee met in Washington on Dec. 10 and 11 to decide on the time and place for the National Convention of 1920 and to plan for the coming campaign. Party workers and chairmen of state committees were present from many states, and plans were made to maintain throughout the campaign of 1920 a well organized connection between the state organizations and the National Committee. Miss Mary Garrett Hay of New York and Mrs. Margaret McCarter of Kansas spoke as representatives of Republican women voters.

The National Convention was called to meet in Chicago on June 8, 1920. The early date guarantees that the Democratic Convention will be called later, which is a departure from party practice as the party in power is usually first to make its nominations and declarations. The formal "call" sent out by Chairman Hays lays down the new apportionment of state representation, making the total number of delegates 984, instead of 991 as in 1916. The basis of apportionment is the same as in 1916, but in the calculation certain states gain whereas others lose in the representation. Texas loses three, Alabama and Arkansas each two, Massachusetts and Tennessee each one, and New York and North Carolina each gains one. The "call" provides that all delegates and alternates must be chosen "not earlier than 30 days after the date of this call and not later than 30 days before the meeting of the National Convention," unless otherwise provided by state law.

A movement was started looking toward the retention of Chairman Hays as the head of the National Committee regardless of who may be nominated for President. The supporters of Mr. Hays asserted that the custom of giving the chairmanship to a close friend or active pre-Convention supporter of the Presidential nominee should be disregarded in 1920, in order to enable the chairman to continue the

organization which he has begun. Several Presidential candidates or "possibilities" were spoken of, among them, in addition to Gen. Leonard Wood, were certain "favorite sons," Governor Lovden of Illinois, Senator Harding of Ohio, and Governor Sproul of Pennsylvania. Chairman Hays announced that the party managers would coöperate with the women in a determined effort to have the woman-suffrage amendment ratified by Feb. 15, the 100th anniversary of the birth of Susan B. Anthony. The Committee urged that in all states where the Republican Party is in control special sessions of the legislatures be called, if necessary, in order to ratify the pending amendment before Feb. 1, 1920. Attention was called to the fact that 18 of the 22 states so far ratifying woman suffrage are Republican states. Both parties are exerting every effort to win the woman vote, as fully 15,000,000 women will be entitled to vote in the national elections even without the ratification of the amendment (see also V, *Popular Government*).

With a view to making suggestion for the platform of the National Convention, committees were appointed from among Party workers to consider Party policies which will represent more than the mere hasty conclusions of the three or four crowded days of the Convention. A council, including four women, was also created to deliberate on matters touching the Party welfare and to make recommendations for the consideration of the National Convention. This council, or "Policies Committee," will bring to the Convention the result of six months of concentrated attention to Party policies in which all important elements of Party opinion will be represented. The National Republican Committee is offering prizes aggregating \$10,000 for the best platform suggestions made by young Republicans. The first prize will be \$6,000, the second \$3,000, and the third \$1,000. The money for this purpose was donated by Truxton Beale, former U. S. Minister to Persia.

BIBLIOGRAPHY

Among the publications in American history appearing in 1918 and 1919, the following are noteworthy, in

addition to the special bibliographies listed in other departments of the YEAR BOOK:

I. AMERICAN HISTORY

- American Year Book*, 1917 and 1918. (Appleton.)
- ARCHER, William.—*The Peace-President*. (Holt.)—A cordial English estimate of President Wilson.
- BEVERIDGE, A. J.—*The Life of John Marshall*. Vols. 3-4. (Houghton, Mifflin.)—The concluding volumes of this monumental biography.
- BIDDLE, Nicholas.—*The Correspondence of Nicholas Biddle Dealing with National Affairs, 1807-1844*; ed. by R. C. McGrane. (Houghton, Mifflin.)
- CALHOUN, A. W.—*A Social History of the American Family from Colonial Times to the Present*. Vol. 3. (Arthur H. Clark Co.)—The concluding volume of the most complete study of the evolution of family institutions in the United States.
- Cambridge History of American Literature*. William P. Trent and others. eds., Vol. 2: (Putnam.)—A composite work, of many inequalities.
- Centennial History of Illinois*. Vol. 2: PEASE, T. C.—*The Frontier State, 1818-48*; Vol. 3: Cole, A. C.—*The Era of the Civil War, 1848-70*. (Illinois Centennial Commission.)—Two scholarly works of the notable coöperative series of five volumes.
- Chronicles of America*, Allen Johnson, ed. 50 vols. (Yale Univ. Press.)—A coöperative work, of much inequality of merit, which treats the entire period of American history and which sets a new fashion in historical writing.
- COMMONS, J. R. and others.—*History of Labor in the United States*. 2 vols. (Macmillan.)—A monumental, coöperative work, constituting one section of a projected *Economic History of the United States*.
- COX, I. J.—*The West Florida Controversy, 1798-1813: A Study in American Diplomacy* (the Albert Shaw Lectures on Diplomatic History, 1912). (Johns Hopkins Press.)—Study of a complicated phase in the history of the expansion of the United States.
- DALE, H. C.—*The Ashley-Smith Explorations and the Discovery of a Central Route to the Pacific, 1822-1829. With the Original Journals*. (Arthur H. Clark Co.)—Careers of Gen. Wm. H. Ashley and Jedediah Smith, treating of the fur-trade and exploration of the West; with original documents.
- Les États-Unis d'Amérique et le Conflit Européen, 4, Août 1914-6 Avril 1917*. par Achille Viallate; *Les États-Unis et la Guerre: de la Neutralité à la Croisade*, par Émile Hovelague. (Paris, Félix Alcan.)—Keen analyses by two prominent Frenchmen well acquainted with American affairs.
- FARRAND, Max.—*The Development of the United States from Colonies to a World Power*. (Houghton, Mifflin.)—A unique, iconoclastic, interesting work which concentrates attention upon commercial growth and attempts to develop the personality of the American people.
- FISKE, A.—*From Midshipman to Rear Admiral: A Record of Forty-nine Years in the United States Navy*. (Century Co.)
- GAUSS, Christian.—*Why We Went to War*. (Scribner.)—A skillful, sober, documented work by an American of German birth.
- GLASSON, W. H.—*Federal Military Pensions in the United States*. (Oxford Univ. Press.)—A comprehensive and impartial study of an intricate subject.
- HORNBLOW, Arthur.—*A History of the Theatre in America*. 2 vols. (Lippincott.)—The first complete, chronological narrative.
- LEONARD, L. A.—*Life of Charles Carroll of Carrollton*. (Moffat, Yard.)
- LEVY, T. A.—*Lincoln, the Politician*. (Badger.)
- LONN, Ella.—*Reconstruction in Louisiana after 1868*. (Putnam.)—An able, specialized study of a critical period.
- LOW, A. M.—*Woodrow Wilson, An Interpretation*. (Little, Brown.)—A favorable estimate, free from political bias, by an English journalist.
- MCMASTER, J. B.—*The Life and Times of Stephen Girard*. 2 vols. (Lippincott.)—A comprehensive biography of the great Pennsylvania merchant, mariner, banker, philanthropist and patriot-financier, and a history of economic and commercial conditions for a half-century previous to 1812.
- The United States in the World War*. 2 vols. (Appleton.)—An early work by a recognized historian.
- OGG, F. A.—*National Progress, 1907-1917 (The American Nation, a History, Vol. 27)*. (Harper.)—An able study of a recent and complex period.
- PALMER, Frederick.—*America in France*. (Dodd, Mead.)—A popular and systematic account of the organization and history of the A. E. F.
- PHILLIPS, U. B.—*American Negro Slavery*. (Appleton.)—A comprehensive and enlightening study of slavery and slave trading, viewed from the economic side.
- PORTER, K. H.—*A History of Suffrage in the United States*. (Univ. of Chicago Press.)—A readable and enlightening study covering the entire period of American history.
- PURCELL, R. J.—*Connecticut in Transition, 1775-1818*. (Am. Hist. Assoc.)—A good study of revolutionary changes in the social and political order.
- RHODES, J. F.—*History of the United States from Hayes to McKinley, 1877-1896*. (Macmillan.)
- SCHLESINGER, A. M.—*The Colonial Merchants and the American Revolution, 1763-1776*. (Columbia Univ. Studies in History, Economics, and Public Law, Vol. lxxviii.)—An original and noteworthy contribution to pre-Revolutionary history.
- SMITH, J. H.—*The War with Mexico, 1846-1848*. 2 vols. (Macmillan.)
- THAYER, W. R.—*Theodore Roosevelt; an Intimate Biography*. (Houghton, Mifflin.)
- USHER, R. G.—*The Pilgrims and Their History*. (Macmillan.)—An excellent, scholarly, and timely work.
- VILLIERS DU TERRAGE, Mac, Baron de.—*Histoire de la Fondation de la Nouvelle Orléans (1717-1722)*. (Paris, Imprimerie Nationale.)—A definitive history and a charming narrative.
- WEST, H. L.—*Federal Power: Its Growth and Necessity*. (Doran.)

II. INTERNATIONAL RELATIONS

CHARLES E. ASNIS

THE PEACE CONFERENCE¹

Organization.—Early in January representatives of the Powers associated against Germany and her allies assembled at Paris for the task of drafting terms of peace. The organization of the Peace Conference was assumed in the beginning by the four Great Powers, the United States, Great Britain, France, and Italy; Japan was soon added to complete what came to be known as the Big Five. Their representatives, organized first as a Council of Ten, arranged the preliminaries of the Conference; decisions and *communiqués* were issued in their names. The rules of the Conference were adopted by the Big Five; representation of the states in the Conference and the number of their delegates were likewise fixed by them; committees and commissioners were created by them. Their sessions were as secret as they desired to make them. The delegations of the Big Five were as follows:

UNITED STATES:

Woodrow Wilson, President
Robert Lansing, Secretary of State
Henry White, ex-Ambassador to Rome and Paris
Edward M. House
Gen. Tasker H. Bliss

ENGLAND:

David Lloyd George, Premier
Andrew Bonar Law, Privy Seal
Arthur James Balfour, Foreign Secretary
Viscount Milner, Colonial Secretary
George Nicoll Barnes, M. P.

FRANCE:

Georges Clemenceau, Premier
Stephen Pichon, Foreign Minister
Lucius-Lucien Klotz, Minister of Finance
André Tardieu
Jules Cambon, Ambassador of France

ITALY:

Vittorio Orlando, Premier
Baron S. Sonnino, Deputy
Antonio Salandra

JAPAN:

Marquis Saionji
Baron Makino
Viscount Chinda, Ambassador to London
K. Matsui, Ambassador to Paris
H. Ijuin, Ambassador to Rome

The so-called smaller powers were later informed of the number of delegates which they would be permitted to send to the Conference. In a *communiqué* issued on Jan. 15 the Big Five announced that:

It was decided that the United States, the British Empire, France, Italy, and Japan should be represented by five delegates each. . . . The British Dominions and India, besides, shall be represented as follows: Two delegates respectively for Australia, Canada, South Africa, and India, including the native states, and one delegate for New Zealand.

Brazil was given three delegates; Belgium, China, Greece, Poland, Portugal, the Czecho-Slovak Republic, Rumania, and Serbia were given two delegates each; and Siam, Cuba, Haiti, Honduras, Liberia, Nicaragua, and Panama, one delegate each. Montenegro was also given one delegate, but the designation of this delegate was to be postponed until the political situation in that country cleared. Each delegation, whether of one or five, acted as a unit under the rules of the Conference; number, therefore, had no influence on its legal status at the peace table. The panel system was permitted, thus enabling each state to entrust its interests to such persons as it might designate. Decisions of the Conference were not subjected to a vote for or against, because under the rules unanimous action was necessary for the final adoption of any plan or decision. In the last analysis the largeness or smallness of representation was immaterial, so long as representation in fact was permitted. Nevertheless, the

¹ An exhaustive chronology of the proceedings of the Peace Conference will be found in XXXI, *Chronology of the European War*.

allocation of the number of representatives to the disadvantage of the smaller nations caused considerable antagonism in their ranks.

Protests of Smaller States.—Belgium and Serbia, with a long record of war sufferings, objected to being placed in the same category with Siam, with two delegates, and in a position of inferiority to Brazil, who was given three delegates. Their protest resulted in their getting three delegates each. Hedjaz was afterwards added with two delegates. Brazil's large representation, it was explained, was due to her population of more than 20,000,000, to her valuable service rendered in the war against German raiders on the South Atlantic trade routes, and finally to the fact that she represented the South American continent in the ranks of the belligerents.

The first sign of organized discontent on the part of the 19 small powers was manifested when the resolutions announced by the Big Five creating the important commissions on labor, reparation, responsibility for the war, and ports, railways, and waterways were presented to the Conference. It then became apparent that the small nations had formed a *bloc* and would contest the decisions of the Big Five to restrict their representation on these commissions. Camille Huysmans in behalf of Belgium asked for two members on each of the Commissions on Labor, Reparation, and the League of Nations, and one on each of the others. The Serbian delegates made a similar request. M. Venizelos in behalf of Greece asked for representation on the Commissions on Reparation and on Ports. Rumania, Czecho-Slovakia, Poland, Portugal, China, and Siam also asked for places.

An elastic committee system was suggested by means of which any small nation or group of small nations would have full equality with the big ones in deciding any question which directly concerned it or them. The Big Five yielded to the smaller nations. On Jan. 25, at a plenary session of the Conference, it was decided that the 19 smaller nations should designate their representatives at a meeting of their own, under the presidency of Jules Cambon, French delegate and former Ambassador at Washington.

This meeting was held on Jan. 27 and resulted in the designation of Belgium, Brazil, China, Serbia, and Portugal for representation on the Commission on the League of Nations; of Belgium, Serbia, Rumania, Greece, and Poland on the Commission on Responsibility for the War; of Belgium, Cuba, Poland, and Czecho-Slovakia on the Commission on International Labor Legislation; and of Belgium, China, Greece, Serbia, and Uruguay on the Commission on Ports, Waterways, and Railroads.

Commissions of the Conference.—The committee system was adopted throughout the deliberations of the Peace Conference. The following were the dominant Commissions: League of Nations, Responsibility, Reparation, International Labor Legislation, and International Control. The scope of the Commission on the League of Nations is self-evident. It was composed of two delegates from each of the five Great Powers, and one each from Belgium, Brazil, China, Serbia, and Portugal. The Commission on Responsibility for the War was also composed of two representatives of the Big Five and of five representatives from the smaller states. Its duty was to inquire and report:

- (1) The responsibility of the authors of the war.
- (2) The facts as to the breaches of the laws and customs of war committed by the forces of the German Empire and their allies on land, on sea, and in the air during the war.
- (3) The degree of responsibility for these offenses.
- (4) The constitution and procedure of a tribunal appropriate to the trial of these offenses.
- (5) Any other matters, cognate or ancillary to these, which the Commission would find useful and relevant to take into consideration.

The Commission on Reparation was composed of three representatives from each of the five Great Powers, and two each from Belgium, Greece, Poland, Rumania, and Serbia. Its duty was to examine and report: (1), the amount of reparation which the enemy countries ought to pay; (2) the amount they were capable of paying; and (3) the method, the form, and time within which payment should be made. The Commission on International Labor Legislation had refer-

ence to industrial and labor questions (see also XV, *Labor*). It had two representatives from each of the Big Five and five from the smaller nations. Its duties were to inquire into the conditions of employment from an international point of view; to consider the international means necessary to secure common action on matters affecting conditions of employment; and to recommend the form of a permanent agency to continue such inquiry and consideration in coöperation with and under the direction of the League of Nations. The Commission on International Control consisted of two representatives from each of the five Great Powers and five representatives from the smaller nations. Its assigned task was to inquire and report upon the international regimen for ports, waterways, and railways. Problems requiring detailed examination were sent to technical committees.

Publicity of Conference Transactions.—On Jan. 15, three days before the formal opening of the Conference, it was announced that the representatives of the Big Five had adopted a resolution that nothing concerning their deliberations in the Conference should be disclosed, except such information as would be given to the public in the colorless daily *communiqués*, and that a gentleman's agreement prevailed among the delegates not to discuss or in any way to give information of their meetings. It was understood that the American and British delegates opposed the rule of secrecy, but that the French, Italians, and Japanese, voting together, prevailed. This announcement brought forth a storm of protest. On all sides the rule of secrecy was denounced as being in direct violation of the principle of "open covenants of peace openly arrived at." A formal protest was filed by the representatives of the press of the world, as a result of which, and at the instance of President Wilson, the proposed rule was held in abeyance. The press representatives were requested to formulate a plan, and unanimously adopted the following resolutions:

In addition to the *communiqués*, full summaries of the day's proceedings should be issued, not necessarily for textual publication, but for the guidance of the press.

There shall be no interference with free intercourse between the delegates and responsible journalists.

Journalists should be permitted to attend the formal sessions of the Conference.

It is recommended that there be equal treatment of the Allied press by the abolition of the censorship in all Allied countries.

The peace delegates yielded, and an announcement was made on Jan. 17 to the effect that representatives of the press would be permitted at the meetings of the full Conference, but that "upon necessary occasions the deliberations of the Conference may be held *in camera*." Five representatives of the press of each of the five Great Powers were permitted to attend; the press of the smaller powers had proportionate representation.

Rules Governing Conference Proceedings.—The Peace Conference met in its first session on Jan. 18 and elected Premier Georges Clemenceau of France its permanent president. The rules of organization and procedure adopted were as follows:

Section I

The Conference assembled to fix the conditions of peace, first in the preliminaries of peace and then in the definite treaty of peace, shall include the representatives of the belligerent Allied and Associated Powers.

The belligerent powers with general interests—the United States of America, the British Empire, France, Italy, and Japan—shall take part in all meetings and commissions.

The belligerent powers with particular interests—Belgium, Brazil, the British Dominions, and India, China, Cuba, Greece, Guatemala, Haiti, Hedjaz, Honduras, Liberia, Nicaragua, Panama, Poland, Portugal, Rumania, Serbia, Siam, and the Czecho-Slovak Republic—shall take part in the sittings at which questions concerning them are discussed.

The powers in a state of diplomatic rupture with the enemy powers—Bolivia, Ecuador, Peru, and Uruguay—shall take part in the sittings at which questions concerning them are discussed.

Neutrals May Be Summoned

The neutral powers and states in process of formation may be heard either orally or in writing when summoned by the powers with general interests at sittings devoted especially to the examination of questions directly concerning them, but only so far as these questions are concerned.

Section II

The powers shall be represented by plenipotentiary delegates to the number of: Five for the United States of Amer-

II. INTERNATIONAL RELATIONS

ica, the British Empire, France, Italy, and Japan; three for Belgium, Brazil, and Serbia; two for China, Greece, the King of Hedjaz, Poland, Portugal, Rumania, Siam, and the Czecho-Slovak Republic; one for Cuba, Guatemala, Haiti, Honduras, Liberia, Nicaragua, and Panama; one for Bolivia, Ecuador, Peru, and Uruguay.

The British Dominions and India shall be represented as follows: Two delegates each for Australia, Canada, South Africa, and India, including the Native States, one delegate for New Zealand.

Although the number of delegates may not exceed the figures above mentioned, each delegation has the right to avail itself of the panel system. The representation of the Dominions, including Newfoundland, and of India, may be included in the representation of the British Empire by the panel system.

Montenegro shall be represented by one delegate, but the rules concerning the designation of this delegate shall not be fixed until the moment when the political situation of this country shall have been cleared up.

The conditions of the representation of Russia shall be fixed by the Conference at the moment when the matters concerning Russia are examined.

Section III

Each delegation of plenipotentiaries may be accompanied by technical delegates properly accredited and by two stenographers.

The technical delegates may be present at the sittings for the purpose of furnishing information which may be asked of them. They shall be allowed to speak for the purpose of furnishing any desired explanations.

Section IV

The delegates take precedence according to the alphabetical order in French of the powers.

Section V

The Conference will be declared open by the President of the French Republic. The President of the Council of French Ministers will be invested temporarily with the chairmanship immediately after this.

A committee composed of one plenipotentiary of each of the great Allied or Associated powers shall proceed at once to the authentication of the credentials of all the members present.

Section VI

In the course of the first meeting the Conference will proceed to appoint a permanent President and four Vice-Presidents chosen from the plenipotentiaries of the Great Powers in alphabetical order.

Section VII

A secretariat, appointed from outside the plenipotentiaries, composed of one representative of the United States of America, one of the British Empire, one of France, one of Italy, and one of Japan, will be submitted to the approval of the Conference by the President, who will be

the controlling authority responsible for its operations.

This secretariat will be intrusted with the care of drafting the protocols of the meeting, of classifying the archives, of providing for the administration and organization of the Conference, and generally of insuring the regular and punctual working of the service intrusted to it. The head of the secretariat shall have charge of and be responsible for the protocols and archives.

The archives will always be open to the members of the Conference.

Section VIII

The publicity of the proceedings shall be insured by official *communiqués* prepared by the secretariat and made public. In case of disagreement as to the drafting of these *communiqués*, the matter shall be referred to the principal plenipotentiaries or their representatives.

Section IX

Reserved.

Section X

All documents intended for inclusion in the protocols must be handed in in writing by the plenipotentiaries presenting them. No document or proposition may be submitted save by one of the plenipotentiaries or in his name.

Section XI

Plenipotentiaries wishing to make a proposal not connected with the question on the agenda or not arising from the discussion, shall give notice of the same 24 hours in advance, in order to facilitate the discussions. However, exceptions can be made to this rule in the case of amendments or secondary questions, but not in the case of substantive proposals.

Section XII

Petitions, memoranda, observations, or documents forwarded to the Conference by any persons other than plenipotentiaries must be received and classified by the secretariat. Such of these communications as are just political will be briefly summarized in a line to be distributed to all the plenipotentiaries. This list will be kept up to date as analogous communications are received. All such documents will be deposited in the archives.

Section XIII

The discussion of the question to be decided will comprise a first and second reading. The first will consist of the general subject, with the object of obtaining an agreement on matters of importance. Subsequently there will be a second reading for a more detailed examination.

Section XIV

The plenipotentiaries shall have the right, subject to the agreement with the Conference, to authorize their technical delegates to submit technical explanation on such points as may be deemed lawful.

If the Conference thinks advisable, the technical examinations of any particular

II. INTERNATIONAL RELATIONS

question may be entrusted to a committee of technical delegates, whose duty will be to report and suggest solutions.

Section XV

The protocols drawn up by this secretariat shall be printed and distributed in proof to the delegates in the shortest possible time. To expedite the work by the Conference, the communications thus made in advance shall take the place of the reading of the protocols at the beginning of each meeting. If no alteration is proposed by the plenipotentiaries, the text shall be deemed approved and entered in the archives.

If any alteration is proposed, its text shall be read by the President at the be-

ginning of the following meeting. In any case the protocol must be read out in full at the request of any plenipotentiary.

Section XVI

A committee shall be formed for drafting the resolutions adopted. This committee shall concern itself only with questions which have been decided. Its sole duty shall be to draw up the text of the decision adopted and to present it for the approval of the Conference.

It shall be composed of five members not forming part of the plenipotentiary delegates and composed of one representative of the United States of America, one of the British Empire, one of France, one of Italy, and one of Japan.

MAJOR PROBLEMS OF THE PEACE CONFERENCE

THE LEAGUE OF NATIONS

Origin of the League of Nations.—

The first of the major problems presented to the Peace Conference was the formation of a League of Nations, which had been prominent in the discussion of the settlement ever since the enunciation of President Wilson's "fourteen points," (*A. Y. B.*, 1918, p. 105 *et seq.*). The League had its origin in the Peace Conference in a resolution presented and adopted at a plenary session on Jan. 25. President Wilson in an address to the Conference pointed out the need of a society of nations. He stated that there were many complicated questions which could not be adjusted successfully at the Conference, and which would need subsequent consideration. "It is, therefore, necessary that we should set up some machinery by which the work of this Conference shall be rendered complete." The League was to be a vital thing, the President said, functioning without break or intermission. "It should be the eye of the nations, to keep watch upon the common interest." A resolution to create a League of Nations and to name a commission to complete a plan was adopted unanimously. It read as follows:

It is essential to the maintenance of the world settlement which the associated nations are now met to establish that a League of Nations be created to promote international obligations and to provide safeguards against war.

The League should be created as an integral part of the general treaty of peace and should be opened to every civilized nation which be relied on to promote its objects.

The members of the league should pe-

riodically meet in international conference and should have a permanent organization and secretaries to carry on the business of the League in the intervals between the conferences.

The Conference therefore appoints a committee, representative of the associated Governments, to work out the details of the constitution and the functions of the League and the draft of resolutions in regard to breaches of the laws of war for presentation to the Peace Conference.

The members of the Commission were designated on the same day. The representatives of the principal powers were:

United States.—President Wilson and Col. Edward M. House.

Great Britain.—Lord Robert Cecil and Gen. Jan Christian Smuts.

France.—Leon Bourgeois and Ferdinand Larnaude, Dean of the Faculty of Law of the University of Paris.

Italy.—Premier Orlando and Vitorio Scialoja.

Japan.—Viscount Chinda and K. Ochiai.

Fourteen nations were represented on the Commission; in addition to the five principal Allies they were: Belgium, Brazil, China, Czecho-Slovakia, Greece, Poland, Portugal, Rumania, and Serbia.

The First Draft of the Covenant.—

After an interval of three weeks the draft of a constitution was reported to the Peace Conference with the unanimous approval of the representatives of the 14 nations. As chairman of the Commission on the League of Nations, President Wilson reported its conclusions at a plenary session of the Conference on Feb. 14. The draft, which comprised 26 articles, contained provisions which had previously appeared in substance in the public press. The

details are not here discussed, but are considered in comparison with the revised and final draft in a later section. It was clear that although provision was made for discussion, the united force of the associated Governments was in the background of the programme. It was to be used as a last resort, the President said, for "if the moral force of the world will not suffice, the physical force of the world shall." As framed by the Commission, the League could be used for co-operation in any international matter. The provision concerning labor was an instance. Publicity of all treaties and international agreements, registration of them with the Secretary-General, provisions for mandatories, for arbitration, for preservation of territorial integrity of its members, for reduction of armaments, for abrogation of treaties inconsistent with the Covenant, were formulated as part of the constitution. The constituent parts of the League were an Executive Council, "a body of delegates," and a permanent secretariat.

The draft lacked coördination, betrayed hasty preparation, showed an inaccurate and cumbrous use of phraseology, and left much to inference. For instance, there was no provision whatever for the withdrawal of a member from the League. Not a word was said of the Monroe Doctrine. It seemed, but it was not expressly provided (as was claimed by the framers), that the decisions of the Executive Council must be unanimous; this was left to inference. It was not clear (although the framers again stated that the inference was plain) that domestic questions, such as that of Japanese immigration, were removed from the jurisdiction of the League. Again, it would appear that the acceptance of a mandatory for colonies or for backward or weaker nations was compulsory, whereas the intent was to make such acceptance voluntary. Clearly, it was a case for a redraft commission. The original was the draft which President Wilson brought with him to the United States on the occasion of his first return and which was the subject of his Boston and New York speeches (see I, *American History*).

In the main, the Covenant followed

the British plan. The principal provisions of the British draft were an agreement to preserve intact the territorial integrity of the states; erection of a small inner council for the transaction of international matters, with an Assembly composed of delegates of all nations, including the British Dominions and India; establishment of a Court of Arbitration, with a division of disputes into those that were justiciable and those that were non-justiciable; a programme of gradual disarmament; and the abolition of conscription. This plan left its impress on the final Covenant.

The Revised and Final Draft.—The Covenant went back to the Commission for revision. The need for a careful and clear exposition of the constitution was particularly insisted upon in the United States (see also I, *American History*), and the changes made in the Covenant reflect the constructive suggestions of ex-President Taft, Charles E. Hughes and Elihu Root. The recommendation of others for a revision of Article X, which guaranteed the territorial integrity of states, did not prevail. The revised and final draft of the Covenant of the League of Nations was presented by President Wilson at a plenary session of the Peace Conference on April 28 and was adopted without revision and without amendment. The phraseology of the document was immeasurably improved. Obligations, understandings, and conditions which in the first draft were assumed to exist by inference were in the redraft explicitly stated. In the very first article a paragraph appears providing for the withdrawal of a member after two years' notice. Article V makes it clear that decisions by the Council are to be unanimous. Article VIII no longer leaves it to inference that the various Governments must first approve and adopt the programme of reduction of armaments before it can become effective. Article XV explicitly removes domestic questions from the consideration of the League and makes it no longer doubtful as to the question of Japanese immigration. Article XXI is entirely new and makes assurance doubly sure that the Monroe Doctrine is in no way affected. Article XXII renders it

II. INTERNATIONAL RELATIONS

clear that a mandatory may be refused by a state by the insertion of the words "and who are willing to accept it." There is an important change in Article XXVI to the effect that an amendment may be made by a majority of the League instead of by three-fourths as originally provided. Article X, guaranteeing the territorial integrity of states, though much discussed in the U. S., remains unchanged.

Objections to the Covenant.—The Covenant as revised was adopted without amendment but its progress towards adoption was marked by attempts of at least three states to change its terms. The Japanese delegates fought vigorously for the inclusion of a clause declaring their racial equality. They sought to amend the Preamble by inserting after the words: "In order to promote international co-operation and to secure international peace . . . by the prescription of open, just and honorable relations between nations," the additional clause: "by the endorsement of the principle of equality of nations and just treatment of their nationals." The amendment came up for decision in the Commission on April 11, presented by Baron Makino. He stated that no Asiatic nation could be happy in a League of Nations in which sharp racial discrimination was maintained. "We are not too proud to fight, but we are too proud to accept a place of admitted inferiority in dealing with one or more associate nations." He pointed out the difficulties in the way of a permanent and successful operation of the League unless the contracting parties entered it with mutual respect. Members of the Commission called Baron Makino's attention to the representation of Japan on the Council of the League of Nations as one of the five Great Powers. A rejection of the amendment in view of such specific inclusion could not be construed as diminishing the prestige of Japan. In the discussion various members were outspoken in their opposition to the amendment; as unanimous approval was needed, it failed of adoption. This failure was in the diplomatic strategy of Japan, as later developed, the main cause of her successful presentation of the Shantung clauses in the Peace Treaty (see *infra*).

Amendments offered by the French delegates sought to give "bone, muscle, and nerves" to the Covenant. Having borne the full shock and pressure of the enemy during the war, and being the only Great Power that still had to reckon with him as a neighbor, the French were not content with what they called the "doctrinaire" phases of the Covenant. Their amendments were designed to insure a *victoire intégrale* by provision of military coöperation of her Allies under the League. Specifically, they insisted upon the inclusion of a provision creating an Inter-Allied General Staff which would link the armies of the world for united action. The amendments were not adopted in the Commission, but the programme of the French prevailed in the form of a tripartite defensive alliance with Great Britain and the United States (see also *infra*).

Belgium supported France's suggestions for a central military institution, as was to be expected of a nation that has so frequently served as the cockpit of Europe. Her main objections were to the designation of any city other than Brussels as the capital of the League. The designation of Geneva engendered great bitterness, not only in Belgium, but also in France. The Commission divided 12 votes to six, France, with her two votes, supporting Belgium. It was decided that the capital of the League should be removed from the scenes of devastation of the war. Brussels, it was thought, would be a continual reminder of the bitterness of the great strife, which was precisely the reason the French and Belgians urged the choice of the Belgian capital.

The Council and Members of the League.—Article IV of the Covenant provides that the Council shall consist of representatives of the United States, the British Empire, France, Italy, and Japan, "together with representatives of four other members of the League." As these four additional members are eventually to be chosen by the Assembly of the League, the Peace Conference at a plenary session on April 28 adopted a resolution "that until such time as the Assembly shall have selected the first four members of the League to be represented on the Council . . . representatives of Bel-

gium, Brazil, Greece and Spain shall be members." These, together with the representatives of the five Great Powers, constitute the first Council.

The Assembly will consist of representatives (1) of the original members of the League of Nations, who may roughly be termed the belligerents, and (2) of nations who are to be invited "to accede to the Covenant" (see Annex to the text of the Covenant, *infra*). The excluded states may be divided into three groups, (1) the enemy states, (2) Russia, and (3) the three Central American states of Mexico, Costa Rica, and the Republic of Santo Domingo. As for Mexico her exclusion may be laid to the pro-German attitude of the Carranza Government, which Great Britain and France have refused to recognize. Costa Rica may be classed with Mexico, as the United States refused to recognize the Tinoco Government there (see also III, *Latin America*). As for the Dominican Republic, the recent American protectorate following disorders have militated against her recognition as a full-fledged state. Any excluded or new state may be admitted as a member on a two-thirds vote of the Assembly, "provided that it shall give effective guarantees of its sincere intention to observe its international obligations, and shall accept such regulations as may be prescribed by the League in regard to its military and naval forces and armaments."

The Balance of Power and the League.—The Covenant has made no change in the great force that has always dominated international relations, generally known as the "balance of power," whereby the Great Powers have impressed their will on the affairs of Europe. The same Powers that dominated the Old World before the war are in control under the provisions of the Covenant, for certain nations are to have perpetual representation in the Council of the League, whose decisions are to be unanimous: that is to say, the veto of any one of the Great Powers will prevent action although urged and supported by all the others. To the Big Four of the old order the United States is added. The powers and prerogatives under the Covenant centralize in these five Great Powers. The Covenant may be

amended by a majority of the Assembly, but the unanimous consent of the Council is necessary. The Council may be increased in number by a vote of the Assembly, but again the consent of the Council is necessary. If matters affecting a member of the League not represented in the Council are under discussion by the Council, its representative may sit with the Council, but he has no vote. The point of departure from the politics of the balance of power lies in the creation of the Assembly of the members, who will meet at stated intervals, who enjoy unlimited right of discussion, and who can have recourse to the pressure of public opinion.

Arbitration, Inquiry, and War.—Under Article XI any war or threat of war, whether involving a member of the League or not, is declared to be "a matter of concern to the whole League and the League shall take any action that may be deemed wise and effectual to safeguard the peace of nations." Disputes are apparently divided into those capable of arbitration and those subject "to inquiry" by the Council. The members of the League agree to submit "any dispute likely to lead to a rupture" either to arbitration by arbitrators or to an inquiry by the Council. In no case are they to resort to war until three months after the award by the arbitrators or the report of the Council. Disputes capable of arbitration are clearly defined by the Covenant, as follows: disputes as to interpretation of treaties, as to any question of international law, as to the existence of any fact which if established would constitute a breach of any international obligation, or as to the extent and nature of the reparation to be made for any such breach. In the event of a failure to carry out such an award, "the Council shall propose what steps should be taken to give effect thereto."

Disputes not arbitrable are submitted to the Council for inquiry. If the report of the Council (other than the representatives of the parties to the dispute) is unanimous, then the members of the League undertake that they will not go to war with any party to the dispute that complies with the recommendations of the report. If the report is not unanimous, the mem-

bers "reserve to themselves the right to take such action as they shall consider necessary for the maintenance of right and justice." If the dispute is found to be solely within the domestic jurisdiction of one of the parties, the Council will report accordingly and make no recommendation as to its settlement. The Council may refer any dispute to the Assembly of the League on request of either party, provided the request is made within 14 days after the submission of the dispute to the Council. The report of a majority of the Assembly and a full concurrence of the Council (exclusive in each case of the representatives of the disputants) will have the same force as a report of the Council.

Resort to war by any member in disregard of an award of arbitrators or of the report of the Council will lead to severance of all trade or financial relations and the prevention of all financial, commercial, or personal intercourse "between the nationals of the Covenant-breaking state and the nationals of any other state, whether a member of the League or not." In such case, the Council will recommend to the various nations "what effective military or naval force" they shall contribute to the "armed forces" to be used in carrying out the covenants of the League. If the dispute involves a nation not a member of the League, or is between nations not members, it or they will be invited to accept the obligations of membership in the League for the purposes of such dispute. If the invitation is refused and war is declared, the Council is empowered to take such measures as will "prevent hostilities and will result in the settlement of the dispute."

The clause providing for the establishment of a permanent Court of International Justice (Article XIV) is expressed in general terms. When established, the Court will hear and determine any dispute of an international character, "which the parties thereto submit to it." The Court may also give advisory opinions upon any dispute or question which the Council or the Assembly may refer to it.

Mandatories.—The Covenant of the League of Nations provides (Article XXII) for a mandatory system whereby territories inhabited by peo-

ples unable to stand by themselves "under the strenuous conditions of the modern world" will be placed under the tutelage of "advanced nations" who by reason of their resources, experience or "their geographical position" can best undertake the responsibility. The mandatory system grew out of the problem of disposing of German colonies and of dismembering the Turkish Empire. If a nation accepts a mandate, it will be obliged to render an annual report of its charge to the Council of the League of Nations.

On May 7 it was announced that the German colonies were to be thus disposed under the mandatory system:

Togoland and Kamerun.—France and Great Britain shall make a joint recommendation to the League of Nations as to their future.

German East Africa.—The mandate shall be held by Great Britain.

German Southwest Africa.—The mandate shall be held by the Union of South Africa.

The German Samoan Islands.—The mandate shall be held by New Zealand.

The other German Pacific possessions south of the equator, excluding the German Samoan Islands and Nauru.—The mandate shall be held by Australia.

Nauru (Pleasant Islands).—The mandate shall be given to the British Empire.

The German Pacific islands north of the equator.—The mandate shall be held by Japan.

Covenant of the League of Nations.
—The text of the Covenant of the League of Nations, is as follows:

PREAMBLE

In order to promote international co-operation and to achieve international peace and security, by the acceptance of obligations not to resort to war, by the prescription of open, just and honorable relations between nations, by the firm establishment of the understandings of international law as to actual rule of conduct among Governments, and by the maintenance of justice and a scrupulous respect for all treaty obligations in the dealings of organized peoples with one another, the high contracting parties agree to this covenant of the League of Nations.

ARTICLE I

The original members of the League of Nations shall be those of the signatories which are named in the annex to this covenant and also such of those other States named in the annex as shall accede without reservation to this covenant. Such accessions shall be effected by a declaration deposited with the Secretariat within two months of the coming into force of the covenant. Notice there-

II. INTERNATIONAL RELATIONS

of shall be sent to all other members of the League.

Any fully self-governing State, dominion or colony not named in the annex may become a member of the League if its admission is agreed to by two-thirds of the Assembly, provided that it shall give effective guarantees of its sincere intention to observe its international obligations, and shall accept such regulations as may be prescribed by the League in regard to its military and naval forces and armaments.

Any member of the League may, after two years' notice of its intention so to do, withdraw from the League, provided that all its international obligations and all its obligations under this covenant shall have been fulfilled at the time of its withdrawal.

ARTICLE II

The action of the League under this covenant shall be effected through the instrumentality of an Assembly and of a Council, with a permanent Secretariat.

ARTICLE III

The Assembly shall consist of representatives of the members of the League.

The Assembly shall meet at stated intervals, and from time to time as occasion may require, at the seat of the League or at such other place as may be decided upon.

The Assembly may deal at its meetings with any matter within the sphere of action of the League or affecting the peace of the world.

At meetings of the Assembly, each member of the League shall have one vote, and may have not more than three representatives.

ARTICLE IV

The Council shall consist of representatives of the United States of America, of the British Empire, of France, of Italy, and of Japan, together with representatives of four other members of the League. These four members of the League shall be selected by the Assembly from time to time in its discretion. Until the appointment of the representatives of the four members of the League first selected by the Assembly, representatives of Belgium, Brazil, Greece, and Spain shall be members of the Council.

With the approval of the majority of the Assembly, the Council may name additional members of the League whose representatives shall always be members of the Council; the Council with like approval may increase the number of members of the League to be selected by the Assembly for representation on the Council.

The Council shall meet from time to time as occasion may require, and at least once a year, at the seat of the League, or at such other place as may be decided upon.

The Council may deal at its meetings with any matter within the sphere of action of the League or affecting the peace of the world.

Any member of the League not represented on the Council shall be invited to

send a representative to sit as a member at any meeting of the Council during the consideration of matters specially affecting the interests of that member of the League.

At meetings of the Council, each member of the League represented on the Council shall have one vote, and may have not more than one representative.

ARTICLE V

Except where otherwise expressly provided in this covenant, or by the terms of this treaty,² decisions at any meeting of the Assembly or of the Council shall require the agreement of all the members of the League represented at the meeting.

All matters of procedure at meetings of the Assembly or of the Council, the appointment of committees to investigate particular matters, shall be regulated by the Assembly or by the Council and may be decided by a majority of the members of the League represented at the meeting. The first meeting of the Assembly and the first meeting of the Council shall be summoned by the President of the United States of America.

ARTICLE VI

The permanent Secretariat shall be established at the seat of the League. The Secretariat shall comprise a Secretary-General and such secretaries and staff as may be required.

The first Secretary-General shall be the person named in the annex; thereafter the Secretary-General shall be appointed by the Council, with the approval of the majority of the Assembly.

The secretaries and the staff of the Secretariat shall be appointed by the Secretary-General with the approval of the Council.

The Secretary-General shall act in that capacity at all meetings of the Assembly and of the Council.

The expenses of the Secretariat shall be borne by the members of the League in accordance with the apportionment of the expenses of the International Bureau of the Universal Postal Union.

ARTICLE VII

The seat of the League is established at Geneva.

The Council may at any time decide that the seat of the League shall be established elsewhere.

All positions under or in connection with the League, including the Secretariat, shall be open equally to men and women.

Representatives of the members of the League and officials of the League when engaged on the business of the League shall enjoy diplomatic privileges and immunities.

The buildings and other property occupied by the League or its officials, or by representatives attending its meetings, shall be inviolable.

² The Treaty of Peace, of which this Covenant forms a part; in other portions of the Treaty certain duties are assigned to the Council of the League of Nations.

II. INTERNATIONAL RELATIONS

ARTICLE VIII

The members of the League recognize that the maintenance of a peace requires the reduction of national armaments to the lowest point consistent with the national safety and the enforcement by common action of international obligations.

The Council, taking account of the geographical situation and circumstances of each State, shall formulate plans for such reduction for the consideration and action of the several Governments.

Such plans shall be subject to reconsideration and revision at least every ten years.

After these plans shall have been adopted by the several Governments, limits of armaments therein fixed shall not be exceeded without the concurrence of the Council.

The members of the League agree that the manufacture by private enterprise of munitions and implements of war is open to grave objections. The Council shall advise how the evil effects attendant upon such manufacture can be prevented, due regard being had to the necessities of those members of the League which are not able to manufacture the munitions and implements of war necessary for their safety.

The members of the League undertake to interchange full and frank information as to the scale of their armaments, their military and naval programmes and the condition of such of their industries as are adaptable to warlike purposes.

ARTICLE IX

A permanent commission shall be constituted to advise the Council on the execution of the provisions of Articles I and VIII and on military and naval questions generally.

ARTICLE X

The members of the League undertake to respect and preserve as against external aggression the territorial integrity and existing political independence of all members of the League. In case of any such aggression or in case of any threat or danger of such aggression, the Council shall advise upon the means by which this obligation shall be fulfilled.

ARTICLE XI

Any war or threat of war, whether immediately affecting any of the members of the League or not, is hereby declared a matter of concern to the whole League, and the League shall take any action that may be deemed wise and effectual to safeguard the peace of nations. In case any such emergency should arise, the Secretary-General shall, on the request of any member of the League, forthwith summon a meeting of the Council.

It is also declared to be the fundamental right of each member of the League to bring to the attention of the Assembly or of the Council any circumstance whatever affecting international relations which threatens to disturb either the peace or the good understanding between nations upon which peace depends.

ARTICLE XII

The members of the League agree that if there should arise between them any dispute likely to lead to a rupture, they will submit the matter either to arbitration or to inquiry by the Council, and they agree in no case to resort to war until three months after the award by the arbitrators or the report by the Council.

In any case under this Article the award of the arbitrators shall be made within a reasonable time, and the report of the Council shall be made within six months after the submission of the dispute.

ARTICLE XIII

The members of the League agree that whenever any dispute shall arise between them which they recognize to be suitable for submission to arbitration and which cannot be satisfactorily settled by diplomacy, they will submit the whole subject matter to arbitration. Disputes as to the interpretation of a treaty, as to any question of international law, as to the existence of any fact, which, if established, would constitute a breach of any international obligation, or as to the extent and nature of the reparation to be made for any such breach, are declared to be among those which are generally suitable for submission to arbitration. For the consideration of any such dispute the court of arbitration to which the case is referred shall be the court agreed on by the parties to the dispute or stipulated in any convention existing between them.

The members of the League agree that they will carry out in full good faith any award that may be rendered and that they will not resort to war against a member of the League which complies therewith. In the event of any failure to carry out such an award, the Council shall propose what steps should be taken to give effect thereto.

ARTICLE XIV

The Council shall formulate and submit to the members of the League for adoption plans for the establishment of a permanent court of international justice. The court shall be competent to hear and determine any dispute of an international character which the parties thereto submit to it. The court may also give an advisory opinion upon any dispute or question referred to it by the Council or by the Assembly.

ARTICLE XV

If there should arise between members of the League any dispute likely to lead to a rupture, which is not submitted to arbitration as above, the members of the League agree that they will submit the matter to the Council. Any party to the dispute may effect such submission by giving notice of the existence of the dispute to the Secretary-General, who will make all necessary arrangements for a full investigation and consideration thereof. For this purpose the parties to the dispute will communicate to the Secretary-General, as promptly as possible, statements of their case, all the relevant

II. INTERNATIONAL RELATIONS

facts and papers; the Council may forthwith direct the publication thereof.

The Council shall endeavor to effect a settlement of any dispute, and if such efforts are successful, a statement shall be made public, giving such facts and explanations regarding the dispute and terms of settlement thereof as the Council may deem appropriate.

If the dispute is not thus settled, the Council either unanimously or by a majority vote shall make and publish a report containing a statement of the facts of the dispute and the recommendations which are deemed just and proper in regard thereto.

Any member of the League represented on the Council may make public a statement of the facts of the dispute and of its conclusions regarding the same.

If a report by the Council is unanimously agreed to by the members thereof other than the representatives of one or more of the parties to the dispute, the members of the League agree that they will not go to war with any party to the dispute which complies with the recommendations of the report.

If the Council fails to reach a report which is unanimously agreed to by the members thereof, other than the representatives of one or more of the parties to the dispute, the members of the League reserve to themselves the right to take such action as they shall consider necessary for the maintenance of right and justice.

If the dispute between the parties is claimed by one of them, and is found by the Council, to arise out of a matter which by international law is solely within the domestic jurisdiction of that party, the Council shall so report, and shall make no recommendations as to its settlement.

The Council may in any case under this Article refer the dispute to the Assembly. The dispute shall be so referred at the request of either party to the dispute, provided that such request be made within fourteen days after the submission of the dispute to the Council.

In any case referred to the Assembly all the provisions of this Article and of Article XII relating to the action and powers of the Council shall apply to the action and powers of the Assembly, provided that a report made by the Assembly, if concurred in by the representatives of those members of the League represented on the Council and of a majority of the other members of the League, exclusive in each case of the representatives of the parties to the dispute, shall have the same force as a report by the Council concurred in by all the members thereof other than the representatives of one or more of the parties to the dispute.

ARTICLE XVI

Should any member of the League resort to war in disregard of its covenants under Articles XII, XIII, or XV, it shall *ipso facto* be deemed to have committed an act of war against all other members of the League, which hereby undertake immediately to subject it to the severance of all trade or financial relations, the

prohibition of all intercourse between their nationals and the nationals of the covenant-breaking State, and the prevention of all financial, commercial, or personal intercourse between the nationals of the covenant-breaking State and the nationals of any other State, whether a member of the League or not.

It shall be the duty of the Council in such case to recommend to the several Governments concerned what effective military or naval forces the members of the League shall severally contribute to the armaments of forces to be used to protect the covenants of the League.

The members of the League agree, further, that they will mutually support one another in the financial and economic measures which are taken under this Article, in order to minimize the loss and inconvenience resulting from the above measures, and that they will mutually support one another in resisting any special measures aimed at one of their number by the covenant-breaking State and that they will take the necessary steps to afford passage through their territory to the forces of any of the members of the League which are cooperating to protect the covenants of the League.

Any member of the League which has violated any covenant of the League may be declared to be no longer a member of the League by a vote of the Council concurred in by the representatives of all the other members of the League represented thereon.

ARTICLE XVII

In the event of a dispute between a member of the League and a State which is not a member of the League, or between States not members of the League, the State or States not members of the League shall be invited to accept the obligations of membership in the League for the purposes of such dispute, upon such conditions as the Council may deem just. If such invitation is accepted, the provisions of Articles XII to XVI inclusive shall be applied with such modifications as may be deemed necessary by the Council.

Upon such invitation being given, the Council shall immediately institute an inquiry into the circumstances of the dispute and recommend such action as may seem best and most effectual in the circumstances.

If a State so invited shall refuse to accept the obligations of membership in the League for the purposes of such dispute, and shall resort to war against a member of the League, the provisions of Article XVI shall be applicable as against the State taking such action.

If both parties to the dispute, when so invited, refuse to accept the obligations of membership in the League for the purposes of such dispute, the Council may take such measures and make such recommendations as will prevent hostilities and will result in the settlement of the dispute.

ARTICLE XVIII

Every convention or international engagement entered into henceforward by

II. INTERNATIONAL RELATIONS

any member of the League shall be forthwith registered with the Secretariat, and shall, as soon as possible, be published by it. No such treaty or international engagement shall be binding until so registered.

ARTICLE XIX

The Assembly may, from time to time, advise the reconsideration by members of the League of treaties which have become inapplicable, and the consideration of international conditions of which continuance might endanger the peace of the world.

ARTICLE XX

The members of the League severally agree that this covenant is accepted as abrogating all obligations or understandings *inter se* which are inconsistent with the terms thereof, and solemnly undertake that they will not hereafter enter into any engagements inconsistent with the terms thereof.

In case a member of the League shall, before becoming a member of the League, have undertaken any obligations inconsistent with the terms of this covenant, it shall be the duty of such member to take immediate steps to procure its release from such obligations.

ARTICLE XXI

Nothing in this covenant shall be deemed to affect the validity of international engagements such as treaties of arbitration or regional understandings like the Monroe Doctrine for securing the maintenance of peace.

ARTICLE XXII

To those colonies and territories which as a consequence of the late war have ceased to be under the sovereignty of the States which formerly governed them, and which are inhabited by peoples not yet able to stand by themselves under the strenuous conditions of the modern world, there should be applied the principle that the wellbeing and development of such peoples form a sacred trust of civilization, and that securities for the performance of this trust should be embodied in this covenant.

The best method of giving practicable effect to this principle is that the tutelage of such peoples be entrusted to advanced nations who, by reasons of their resources, their experience, or their geographical position, can best undertake this responsibility, and who are willing to accept it, and that this tutelage should be exercised by them as mandatories on behalf of the League.

The character of the mandate must differ according to the stage of development of the people, the geographical situation of the territory, its economic condition, and other similar circumstances. Certain communities formerly belonging to the Turkish Empire have reached a stage of development where their existence as independent nations can be provisionally recognized subject to the rendering of administrative advice and assistance by a mandatory until such time as they are able to stand alone. The

wishes of these communities must be a principal consideration in the selection of the mandatory.

Other peoples, especially those of Central Africa, are at such a stage that the mandatory must be responsible for the administration of the territory under conditions which will guarantee freedom of conscience or religion subject only to the maintenance of public order and morals, the prohibition of abuses such as the slave trade, the arms traffic, and the liquor traffic, and the prevention of the establishment of fortifications or military and naval bases and of military training of the natives for other than police purposes and the defense of territory, and will also secure equal opportunities for the trade and commerce of other members of the League.

There are territories, such as Southwest Africa and certain of the South Pacific islands, which, owing to the sparseness of their population or their small size or their remoteness from the centers of civilization or their geographical contiguity to the territory of the mandatory and other circumstances can be best administered under the laws of the mandatory as integral portions of its territory, subject to the safeguards above mentioned in the interests of the indigenous population. In every case of mandate, the mandatory shall render to the Council an annual report in reference to the territory committed to its charge.

The degree of authority, control, or administration to be exercised by the mandatory, shall, if not previously agreed upon by the members of the League, be explicitly defined in each case by the Council.

A permanent commission shall be constituted to receive and examine the annual reports of the mandatories and to advise the Council on all matters relating to the observance of the mandates.

ARTICLE XXIII

Subject to and in accordance with the provisions of international conventions existing or hereafter to be agreed upon, the members of the League (a) will endeavor to secure and maintain fair and humane conditions of labor for men, women, and children, both in their own countries and in all countries to which their commercial and industrial relations extend, and for that purpose will establish and maintain the necessary international organizations; (b) undertake to secure just treatment of the native inhabitants of territories under their control; (c) will entrust the League with the general supervision over the execution of agreements with regard to the traffic in women and children, and the traffic in opium and other dangerous drugs; (d) will entrust the League with the general supervision of the trade in arms and ammunition with the countries in which the control of this traffic is necessary in the common interest; (e) will make provision to secure and maintain freedom of communication and of transit and equitable treatment for the commerce of all members of the League; in this connection the special necessities of the

II. INTERNATIONAL RELATIONS

regions devastated during the war of 1914-1918 shall be in mind; (f) will endeavor to take steps in matters of international concern for the prevention and control of disease.

ARTICLE XXIV

There shall be placed under the direction of the League all international bureaus already established by general treaties if the parties to such treaties consent. All such international bureaus and all commissions for the regulation of matters of international interest hereafter constituted shall be placed under the direction of the League.

In all matters of international interest which are regulated by general conventions, but which are not placed under the control of international bureaus or commissions, the Secretariat of the League shall, subject to the consent of the Council and if desired by the parties, collect and distribute all relevant information and shall render any other assistance which may be necessary or desirable.

The Council may include as part of the expenses of the Secretariat the expenses of any bureau or commission which is placed under the direction of the League.

ARTICLE XXV

The members of the League agree to encourage and promote the establishment and cooperation of duly authorized voluntary national Red Cross organizations having as purposes the improvement of health, the prevention of disease, and the mitigation of suffering throughout the world.

ARTICLE XXVI

Amendments to this covenant may take effect when ratified by the members of the League whose representatives compose the Council and by a majority of the members of the League whose representatives compose the Assembly.

No such amendment shall bind any member of the League which signifies its dissent therefrom, but in that case it shall cease to be a member of the League.

ANNEX TO THE COVENANT

I. *Original members of the League of Nations:*

Signatories of the Treaty of Peace:

United States of America, Belgium, Bolivia, Brazil, British Empire, Canada, Australia, South Africa, New Zealand, India, China, Cuba, Czecho-Slovakia, Ecuador, France, Greece, Guatemala, Haiti, Hedjaz, Honduras, Italy, Japan, Liberia, Nicaragua, Panama, Peru, Poland, Portugal, Rumania, Serbia, Siam, Uruguay.

States invited to accede to the covenant:

Argentine Republic, Chile, Colombia, Denmark, Netherlands, Norway, Paraguay, Persia, Salvador, Spain, Sweden, Switzerland, Venezuela.

II. *First Secretary-General of the League of Nations:* Sir James Eric Drummond.

Adhesions to the League of Nations.—The following states automatically became members of the League of Nations by signing the protocol of ratification of the Peace Treaty in Paris on Jan. 10, 1920; France, Great Britain, Italy, Japan, Belgium, Bolivia, Brazil, Guatemala, Peru, Poland, Siam, Czecho-Slovakia, Uruguay. In addition, the following neutrals have adhered: Argentina, July 18, 1919; Paraguay, Oct. 29, 1919; Chile, Nov. 14, 1919; Persia, Nov. 21, 1919; Spain, Jan. 10, 1920.

RUSSIA

The Proposed Prinkipo Conference.

—On Jan. 22 the Supreme Council of the Peace Conference, at the request of President Wilson, resolved to invite all Russian factions to a conference at Princes' Island, in the Sea of Marmora on Feb. 15. This was the earliest of the attempts of the Peace Conference to arrive at a solution of the Russian problem. It is illustrative of the many other attempts made by the Entente, which were all, previous and subsequent, doomed to failure. Scarcely had the proposal been made when insuperable obstacles appeared to prevent its adoption, and eventually it was abandoned.

Although the Entente Governments at once named representatives to the conference, the invitation failed of hearty acceptance by the Russian factions most involved. As to the Bolshevik Government, the invitation was conditioned on a cessation of hostilities and a withdrawal of troops from invaded territory claimed by others. The Bolshevik Government was wary of the conference. They would not accept the invitation unconditionally, or without preliminary discussion as to the exact purpose of the Entente Governments. So far as the dominant Russian faction was concerned, the invitation reached no further stage than that of consideration. Sergius Sazonoff, representing the Government of Yekaterinador and the Siberian Government at Omsk and speaking for the Denikin, Kolchak, and the Don Governments, declared that he would not participate. Nicholas Tschaikovsky, President of the Provisional Government of Northern

Russia, was equally firm in refusing to enter into a conference with the Bolsheviks. Prince Lvoff, former Russian Premier, representing the Russian Committee in Paris, was outspoken in his refusal to renew relations "with our tyrants." Nevertheless, by the early part of February prospects of assembling at least four of the Russian factions were good. The Ukrainian Soviet Government announced its willingness to accept, as did the Government of the Crimea. The indecision of the Government of General Denikin was later interpreted as a desire to join the conference if one were held. The Bolshevik Government, despite its vague conditions, was counted upon to attend. In addition to these, it was announced that the Estonian and Lettish Governments had accepted the invitation of the Supreme Council. Both, however, asserted that they were no longer a part of Russia, but were willing to participate in a movement tending to tranquillize Russia.

M. Pichon, the French Foreign Minister, on Feb. 9 pointed out that there was a general misunderstanding as to the scope and purpose of the proposed conference. It was not to be interpreted as an invitation to the Russian Governments, particularly the Bolshevik, to confer with the Entente representatives. Primarily the meeting was designed as a conference among themselves but in the presence of the Allied delegates. The function of the latter was merely to "listen in" and form opinions as to what the various factions were striving for and report them to the Peace Conference. He made it clear that the Allied delegates had not the power of negotiation.

Toward the end of February it was clear that the Prinkipo conference would not be held. The anti-Bolshevik Governments were firm in their refusal to parley with the dominant faction in Russia and induced the Entente to believe that remedy lay in armed force against the Bolsheviks. Authority was given to this view on Feb. 28, when André Tardieu, French delegate to the Peace Conference, issued a statement that the Russian conference would not be held. He declared that the Bolsheviks had failed to comply with the conditions laid

down by the Entente as to a suspension of hostilities and that the Allies had in view and under inquiry new methods of restoring order in Russia.

The Negotiations with Admiral Kolchak.—This inquiry centered about the situation and prospects of the All-Russian Government of Admiral Kolchak with headquarters at Omsk, Siberia. The negotiations with Kolchak were by no means the whole of correspondence of the Peace Conference with the military factions in Russia. They are reviewed here in some detail only as one example of the efforts of the Entente to bring about by military means what it had previously sought to accomplish by diplomacy. This attempt at the solution of the Russian problem failed as did that of the proposed conference at Prinkipo.

On May 26 the Council of Five dispatched a messenger to Admiral Kolchak, indicating a willingness to assist his Government with munitions, supplies, and food and thereby help establish him and his associates as the Government of all Russia, provided there were received the following definite guarantees, regarded as indispensable to the liberty, self-government, and peace of the Russian people:

In the first place, that as soon as they reach Moscow, they will summon a Constituent Assembly, elected by a free, secret, and democratic franchise, as the supreme legislature for Russia, to which the Government of Russia must be responsible, or, if at any time order is not sufficiently restored, they will summon the Constituent Assembly, elected in 1917, to sit until such time as new elections are possible.

Secondly, that throughout the areas which they at present control, they will permit free elections in the normal course for all local and legally constituted assemblies, such as municipalities, *zemstvos*, etc.

Thirdly, that they will countenance no attempt to revive the special privilege of any class or order in Russia. The Allied and Associated Powers have noted with satisfaction the solemn declaration made by Admiral Kolchak and his associates that they have no intention of restoring the former land system. They feel that the principles to be followed in the solution of this and other internal questions must be left to the free decision of the Russian Constituent Assembly. But they wish to be assured that those whom they are prepared to assist stand for civil and religious liberty of all Russian citizens and will make no attempt to reintroduce the *régime* which the revolution has destroyed.

Fourthly, that the independence of Finland and Poland be recognized, and that in the event of the frontiers and other relations between Russia and these countries not being settled by agreement, they will be referred to the arbitration of the League of Nations.

Fifthly, that if a solution of the relations between Esthonia, Latvia, Lithuania, and the Caucasian and Trans-Caspian territories and Russia is not speedily reached by agreement, the settlement will be made in consultation and coöperation with the League of Nations, and that until such settlement is made the Government of Russia agrees to recognize these territories as autonomous and to confirm the relations which may exist between their *de facto* Governments and the allied and associated Governments.

Sixthly, that the right of the Peace Conference to determine the future of the Rumanian part of Bessarabia be recognized.

Seventhly, that as soon as a Government for Russia has been constituted on a democratic basis, Russia should join the League of Nations and coöperate with the other members in the limitations of armaments and of military organizations throughout the world.

Finally, that they abide by the declaration made by Admiral Kolchak on Nov. 27, 1918, in regard to Russia's national debt.

The reply of Admiral Kolchak was made on June 7. He accepted in the main the proposals made by the Entente. Two reservations were made, first, as to the calling of a Constituent Assembly, and second, as to dealings with new states formed from old Russia. He agreed to call a Constituent Assembly with full powers, but took exception to the alternative in the Entente offer that the old Constituent Assembly elected in 1917 should be recalled in case it is impossible to form a new one immediately after his arrival at Moscow. The old Assembly, he declared, was irregularly elected before the Bolshevik doctrines were discredited, and consequently the members elected were not representative of the present-day Russia. He also took exception to the provision that Finland be represented as an independent state, declaring that the Constituent Assembly alone could decide such a matter. To Poland he conceded independence, but her final frontiers with Russia would have to be adjusted by mutual agreement. His Government was willing to assure "the autonomy of the various nationalities." In case of difficulties, his Government was ready to have recourse to the collabo-

ration and good offices of the League of Nations "with a view to arriving at a satisfactory settlement."

On June 12 the Council of Four of the Peace Conference replied to the note of Admiral Kolchak extending to him and his associates in the all-Russian Government at Omsk the support set forth in the original message. In French diplomatic circles it was pointed out that this acceptance of Kolchak's assurances was not to be interpreted as a recognition of the Kolchak Government in the usual diplomatic and political sense of the word. The Entente had merely agreed to continue to supply Kolchak with munitions in the hope that thereby they might be able to tranquillize conditions in Russia. The Entente was simply transferring to Admiral Kolchak the military support which it had previously given to their own forces in Russia, which they were ready to withdraw on the assurance that his Government would comply with the conditions imposed. The assurances, sent, were accepted as "satisfactory." Diplomatic and political recognition, it was explained, would follow when Kolchak had accomplished decisive military results. The hope of these proved elusive (see III, *Russia*).

POLAND

Conditions of Recognition.—Poland was recognized by the Peace Conference as an independent state on condition of complying with specific guarantees imposed by the Allied and Associated Powers. The problem of these powers in creating new states was to secure protection to racial, religious, and linguistic minorities. This was particularly true in the case of Poland, which had transferred to it territories that included large populations speaking languages, conforming with religious tenets, and belonging to races different from the dominant people with whom they were to be incorporated as a state. The situation was rendered more acute by the many years of bitter estrangement of the various races. Poland, therefore, was recognized conditionally. She was asked to execute contemporaneously with her recognition certain binding international conventions which took the form

II. INTERNATIONAL RELATIONS

of religious, linguistic, and political guarantees of rights essential to the various peoples, which are to be maintained no matter what changes subsequently take place in the constitution or organization of the Polish State.

It was pointed out to the Polish delegation by M. Clemenceau, in a note of June 24, that in imposing these conditions the Allied and Associated Powers conformed with established procedure of the public law of Europe on the occasion of creation of new states, or when large accessions of territory are made to a state already established. Joint and formal recognition by the Great Powers was given on condition when the sovereignty and independence of Serbia, Montenegro, and Rumania were recognized by the Congress of Berlin in 1878. The conventions which Poland was asked to sign concurrently with her recognition, far from establishing a departure, conformed with established tradition. In 1814 the Netherlands undertook obligations when the Belgian provinces were annexed. Similarly, Greece was bound by international stipulations when she annexed Thessaly.

The Guarantees.—The Polish guarantees were incorporated in a treaty with the United States, Great Britain, France, Italy, and Japan signed at Versailles on June 28, the day of the signature of the general Treaty of Peace with Germany. Articles 8 and 9 provide as follows:

Article 8.—Polish nationals who belong to racial, religious, or linguistic minorities shall enjoy the same treatment and security in law and in fact as the Polish nationals. In particular they shall have an equal right to establish, manage, and control at their own expense charitable, religious, and social institutions, schools and other educational establishments, with the right to use their own language and to exercise their religion freely therein.

Article 9.—Poland will provide, in the public educational system in towns and districts in which a considerable proportion of Polish nationals of other than Polish speech are residents, adequate facilities for insuring that in the primary schools instruction shall be given to the children of such Polish nationals through the medium of their own language. This provision shall not prevent the Polish Government from making the teachings of the Polish language obligatory in the said schools.

In towns and districts where there is a considerable proportion of Polish nationals belonging to racial, religious, or lin-

guistic minorities, these minorities shall be assured an equitable share in the enjoyment and application of the sums which may be provided out of public funds under the State, municipal, or other budgets, for educational, religious, or charitable purposes.

The provisions of this article shall apply to Polish citizens of German speech only in that part of Poland which was German territory on Aug. 1, 1914.

Articles 10 and 11 refer specifically to the Jewish population, which is about 11 per cent. of the newly created Polish State. The Allied and Associated Powers decided upon special protection to the Jews of Poland in view of the historical development of the Jewish question and the great animosity aroused by it. As expressed by M. Clemenceau, this provision was "limited to the minimum which seems necessary under the circumstances of the present day, *viz.*, the maintenance of the Jewish schools and the protection of the Jews in the religious observance of their Sabbath." These articles were as follows:

Article 10.—Educational committees appointed locally by the Jewish communities of Poland will, subject to the general control of the State, provide for the distribution of the proportional share of public funds allocated to Jewish schools in accordance with Article 9, and for the organization and management of these schools.

The provision of Article 9 concerning the use of language in schools shall apply to these schools.

Article 11.—Jews shall not be compelled to perform any act which constitutes a violation of their Sabbath, nor shall they be placed under any disability by reason of their refusal to attend courts of law or to perform any legal business on their Sabbath. This provision, however, shall not exempt Jews from such obligations as shall be imposed upon all other Polish citizens for the necessary purposes of military service, national defenses, or the preservation of public order.

Poland declared her intention to refrain from ordering or permitting elections, whether general or local, to be held on a Saturday, nor will registration for electoral or other purposes be compelled to be performed on a Saturday.

Supervision and Enforcement of the Guarantees.—The enforcement of the guarantees is entrusted to the League of Nations. Under the old system such guarantees would have been vested in the Great Powers, with the consequent possibility of interference in the internal affairs of the state

affected, which too often was used for political purposes. Poland agrees that the guarantees constitute obligations of international concern and are to be placed under the supervision and enforcement of the League of Nations. They can be modified only with the consent of a majority of the Council of the League. Poland further agrees that any member of the Council of the League of Nations shall have the right to bring to the attention of the Council "any infraction, or any danger of infraction, of any of these obligations, and that the Council may thereupon take such action and give such direction as it may deem proper and effective in the circumstances." Poland also agrees that any difference of opinion as to a question of law or fact arising out of these guarantees shall be held to be a dispute of an international character, and consents that such dispute shall, on demand of the other party, be referred to the Permanent Court of International Justice, whose decision shall be final.

The Corridor to the Baltic.—The great port of the new state of Poland is to be Danzig, which, being in German territory, is to be reached by a corridor across German territory that intervenes between Poland and the city of Danzig. Danzig is established as a free city. The effect of this expedient of communication between inland Poland and the Baltic Sea is to cut off East Prussia from the rest of Germany. The problem that confronted the Allies was that of communication by Germany across the corridor to the sea. In Article 89 of the general Treaty of Peace Poland undertakes to grant to persons and to means of transport of whatever nationality coming from or destined to East Prussia the same right of transit over Polish territory intervening between Germany and East Prussia as she gives to her own nationals. The Allies will draw the regulations that will assure to East Prussia full and equitable access to and the use of the Vistula. Both Germany and Poland are under obligation (Article 98 of the general Treaty) to enter into a convention, within one year of the conclusion of the Treaty, for the purpose of securing to Germany, on the one hand, full and adequate railroad fa-

cilities for communication across the corridor, and, on the other hand, to Poland full and adequate railroad facilities for communication between Poland and the free city of Danzig over intervening territory. In case of difference the terms of reciprocal communication shall be settled by the Council of the League of Nations.

The Free City of Danzig.—To establish Danzig and the district surrounding it as a free city was but a corollary to the arrangement of a corridor to the Baltic. As such, it is placed under the protection of the League of Nations, and its constitution, to be drawn by the duly appointed representatives of the city, in agreement with a High Commissioner to be appointed by the League of Nations, is placed under the guarantee of the League. A treaty under the supervision of the Allied and Associated Powers is to be concluded between Poland and Danzig, whereby the latter will be included within the Polish customs' frontiers and Poland ensured of the free use of the city's waterways, docks, and other port facilities, the control and administration of the Vistula and of the railway system within the city, as well as postal, telegraph, and telephone communication between Poland and Danzig. There is to be a free area in the port of Danzig. The foreign relations and diplomatic protection of its citizens abroad are to be in charge of Poland.

FIUME

The Case for Italy.—The conflict between Italy and Jugo-Slavia over the former Austrian city of Fiume was one of the most dramatic episodes of the Peace Conference. The Italian claims were pressed from various angles. The 14 points of President Wilson, the Treaty of London concluded with her European allies, geographical considerations of a strategic frontier, ethnological considerations, all were stressed by Italy's spokesmen. Underlying all these was the age-long policy of making the Adriatic either an Italian lake or, at best, a sea of disarmament. Formerly fearful of Austro-Hungarian extension in the Adriatic, Italy has now confronting her a new power, Jugo-Slavia, with possibilities

in the future of raising the same antagonism as the Hapsburg Monarchy. It was for her a question of anticipating the virile growth of the Slavic nations as they grope their way to the sea. The cardinal policy of Italy is to attain a position of predominancy in the Adriatic or, failing that, to secure the disarmament of the eastern coast and thereby remove the haunting fear of being within a few hours' steaming distance of an enemy.

In point of fact the Treaty of London did not award Fiume to Italy. Great Britain and France conceded to Italy, among other concessions, a large section of the Dalmatian coast (excluding, however, Fiume) as the price of entering the war. Italy, however, was willing to modify the Dalmatian award in exchange for Fiume. There was, in addition, another phase of the triple alliance between Great Britain, France, and Italy which Italian statesmen urged in support of their claim for the city, namely, that none of the allies was to make peace unless with the consent of the others. Italy's consent was sought to be withheld pending the cession of Fiume.

An official Italian memorandum was read to the Peace Conference by Signor Barzilai in support of the Italian claims in the Adriatic states. Briefly it pointed out that they were within the scope and meaning of President Wilson's 14 points, which were the basis of the armistice. That the claims entailed the adding of numbers of citizens of non-Italian origin and language was but a phenomenon to be observed in other states about to be constituted by the Peace Conference on a much larger scale. There need be no fear of dangerous irredentism, because Italian history would bear witness to the fact that nothing untoward had happened in the French, Slav, and German populations already included in the Kingdom. Italy went to war, first, to liberate her oppressed children under Hapsburg rule, and secondly, to secure safe frontiers by land and sea. As for the Adriatic, Italy would not allow to escape the opportunity to retrieve, once for all, the position of inferiority in which she found herself *vis-à-vis* Austria-Hungary. In this respect she was but following the precedent of her allies, in so arranging her

frontiers as to be independently safe from present or future neighboring states. Far from threatening her neighbors across the sea, she aimed only at parrying the threats of others. That the Hapsburg Monarchy had collapsed should not imply the reduction of Italy's measures for guarding a menace on the other side of the Adriatic. "Italy would be threatened from Dalmatia, if the whole of it fell to another state, whereas Italy's claim to a part of Dalmatia threatens no one." In this way alone could she harmonize the workings of the League of Nations with her own policy in devoting herself to realize the reduction of armaments and to make of the Adriatic a sea of disarmament.

Signor Orlando, then the Italian Premier, placed the claims for Dalmatia on the ground of indispensable military considerations. Citing President Wilson's agreement that concessions to Italy by the Allied and Associated Powers have given to Italy her natural defenses, the Alps, he said:

This recognition is of great importance, provided that the eastern flank of this wall does not remain open and that the right of Italy should be interpreted to include the line of Monte Nevasa (north and west of Fiume) which separates the waters running toward the Black Sea and the Mediterranean. Without this precaution a dangerous breach is left in this admirable barrier of the Alps, rupturing the unquestionable, political, economic, and historical unity of the Istrian Peninsula.

Narrowed down to the possession of the city of Fiume alone, the question becomes one of commercial considerations. A non-Italian Fiume would deflect trade from Italian Trieste. It is Italy's contention that in view of her people's aptitude for the sea, if the two ports of Trieste and Fiume were under Italian administration, the difficult mission of serving the needs of the hinterland countries of Austria, Czecho-Slovakia and Jugo-Slavia would be better accomplished than if the ports were under different and competing powers. The loss of Fiume would not affect Jugo-Slavia adversely because of the presence of a number of ports and harbors within her territory.

The Problem from the Allies' Viewpoint.—Great Britain and France, who were signatories of the

Treaty of London which Italy invoked, were placed in a state of embarrassment when the question of Fiume was pressed for solution. It was clear that Fiume was intentionally omitted in this concession to Italy. Italy having consented to the omission, their position was that if pressed for a literal performance of their treaty obligations, Italy could not insist on Fiume. There remained the stipulation of unanimous conclusion of peace with the enemy, the inference, being that Italy would give consent on condition of receiving Fiume. As in the case of Shantung (see *infra*), where the European powers had also bound themselves by secret treaties, the solution was left to the American delegation. President Wilson was the spokesman.

President Wilson's Position.—President Wilson's position, which finally took the form of an open statement, had the sanction and approval of Great Britain and France. As to the question of unanimous consent required by the Treaty of London to conclude the peace, it was stated in several quarters that that condition could not apply in view of the collapse of the enemy Empires. As to the territorial provisions of the London pact, Mr. Wilson, speaking for the other Allies, declared as follows:

In view of the capital importance of the questions affected, and in order to throw all possible light upon what is involved in their settlement, I hope that the following statement will contribute to the final formation of opinion and to a satisfactory solution:

When Italy entered the war she entered upon the basis of a definite private understanding with Great Britain and France, now known as the Pact of London. Since that time the whole face of circumstances has been altered. Many other powers, great and small, have entered the struggle, with no knowledge of that private understanding.

The Austro-Hungarian Empire, then the enemy of Europe, and at whose expense the Pact of London was to be kept in the event of victory, has gone to pieces and no longer exists. Not only that, but the several parts of that empire, it is agreed now by Italy and all her associates, are to be erected into independent states and associated in a League of Nations, not with those who were recently our enemies, but with Italy herself and the powers that stood with Italy in the great war for liberty.

We are to establish their liberty as well as our own. They are to be among

the smaller states whose interests are henceforth to be safeguarded as scrupulously as the interests of the most powerful states.

The war was ended, moreover, by proposing to Germany an armistice and peace which should be founded on certain clearly defined principles which set up a new order of right and justice. Upon those principles the peace with Germany has been conceived, not only, but formulated. Upon those principles it will be executed.

We cannot ask the great body of powers to propose and effect peace with Austria and establish a new basis of independence and right in the states which originally constituted the Austro-Hungarian Empire and in the states of the Balkan group on principles of another kind. We must apply the same principles to the settlement of Europe in those quarters that we have applied in the peace with Germany. It was upon the explicit avowal of those principles that the initiative for peace was taken. It is upon them that the whole structure of peace must rest.

If those principles are to be adhered to, Fiume must serve as the outlet of the commerce, not of Italy, but of the land to the north and northeast of that port, Hungary, Bohemia, Rumania, and the states of the new Yugoslav group. To assign Fiume to Italy would be to create the feeling that we have deliberately put the port upon which all those countries chiefly depend for their access to the Mediterranean in the hands of a power of which it did not form an integral part and whose sovereignty, if set up there, must inevitably seem foreign, not domestic or identified with the commercial and industrial life of the regions which the port must serve. It is for that reason, no doubt, that Fiume was not included in the Pact of London, but there definitely assigned to the Croatsians.

And the reason why the line of the Pact of London swept about many of the islands of the eastern coast of the Adriatic and around the portion of the Dalmatian coast which lies most open to that sea was not only that here and there on those islands, and here and there on that coast, there are bodies of people of Italian blood and connection, but also, and no doubt chiefly, because it was felt that it was necessary for Italy to have a foothold amidst the channels of the Eastern Adriatic in order that she might make her own coasts safe against the naval aggression of Austria-Hungary.

But Austria-Hungary no longer exists. It is proposed that the fortifications which the Austrian Government constructed there shall be razed and permanently destroyed.

It is part also of the new plan of European order which centres in the League of Nations that the new states erected there shall accept a limitation of armaments which puts aggression out of the question. There can be no fear of the unfair treatment of groups of Italian people there, because adequate guarantees will be given, under international sanction, of the equal and equitable treat-

II. INTERNATIONAL RELATIONS

ment of all racial or national minorities.

In brief, every question associated with this settlement wears a new aspect—a new aspect given it by the very victory for right for which Italy has made the supreme sacrifice of blood and treasure. Italy, along with the four other Great Powers, has become one of the chief trustees of the new order which she has played so honorable a part in establishing.

And on the north and northeast her natural frontiers are completely restored, along the whole sweep of the Alps from northwest to southeast to the very end of the Istrian Peninsula, including all the great watershed within which Trieste and Pola lie, and all the fair regions whose face nature has turned toward the great peninsula upon which the historic life of the Latin people has been worked out through centuries of famous story ever since Rome was first set upon her seven hills.

Her ancient unity is restored. Her lines are extended to the great walls which are her natural defense. It is within her choice to be surrounded by friends; to exhibit to the newly liberated peoples across the Adriatic that noblest quality of greatness, magnanimity, friendly generosity, the preference of justice over interest.

The nations associated with her, the nations that know nothing of the Pact of London or of any other special understanding that lies at the beginning of this great struggle, and who have made their supreme sacrifice also in the interest, not of national advantage or defense, but of the settled peace of the world, are now united with her older associates in urging her to assume a leadership which cannot be mistaken in the new order of Europe.

America is Italy's friend. Her people are drawn, millions strong, from Italy's own fair countrysides. She is linked in blood, as well as in affection, with the Italian people. Such ties can never be broken. And America was privileged, by the generous commission of her associates in the war, to initiate the peace we are about to consummate—to initiate it upon terms which she had herself formulated and in which I was her spokesman.

The compulsion is upon her to square every decision she takes a part in with those principles. She can do nothing else. She trusts Italy, and in her trust believes that Italy will ask nothing of her that cannot be made unmistakably consistent with those sacred obligations.

The interests are not now in question, but the rights of peoples, of States new and old, of liberated peoples and peoples whose rulers have never accounted them worthy of a right; above all, the right of the world to peace and to such settlements of interest as shall make peace secure.

These, and these only, are the principles for which America has fought. These, and these only, are the principles upon which she can consent to make peace. Only upon these principles, she hopes and believes, will the people of Italy ask her to make peace.

The President's statement was issued on April 23. On the evening of that day Premier Orlando addressed an official communication to Premier Clemenceau, as President of the Peace Conference, saying that as a result of the statement of President Wilson, the Italian delegation had decided to leave Paris on the afternoon of the next day. Before departing the Italian Premier issued a statement to the press declaring "the impossibility of continuing the participation in the labor of the Peace Conference and expressing regret that the declaration of Mr. Wilson had rendered impossible the last supreme effort toward conciliation on the part of Italy." The Italian delegation returned to the Peace Conference only in time to sign the German Treaty on June 28. The Fiume issue remained unsettled, and it continued to be both an acute and a troublesome problem throughout the remainder of the year (see also III, *Italy*).

D'Annunzio's Exploit.—On Sept. 12 Capt. Gabrielle D'Annunzio of the Italian Army, at the head of a strong force of irregular troops, without orders from the Italian Government and in defiance of the Supreme Council of the Peace Conference, seized the city and harbor of Fiume and proclaimed their annexation to Italy. As a precedent the seizure had disquieting possibilities. The Peace Conference, after prolonged deliberation and in fulfillment of its promises to subject peoples ruled by the enemy Empires, had created new states, the exact frontiers of which were left for boundary commissions to delimit on the spot, with careful regard to claims of nationality and language, so as to avert so far as possible the danger of future wars. The *coup de main* of D'Annunzio is indicative of a tendency, shown in other parts of Europe, to create *de facto* situations in anticipation of decisions of the Peace Conference and to embarrass the deliberations of Allied statesmen. Not only in the Adriatic, but in Poland, in Rumania, and in the Baltic provinces, the Conference is confronting *de facto* situations created by those who would stake their claims in anticipation of decisions which may be made by boundary commissions. D'Annunzio was still in Fiume at the

II. INTERNATIONAL RELATIONS

end of the year despite the efforts by the Peace Conference and the Italian Government to induce him to withdraw (see also III, *Italy*).

Solution by Compensation to Italy Elsewhere.—The Fiume issue may reach its final stage in a compromise such as characterizes European settlements when negotiators reach an *impasse*, that is, in compensation elsewhere. The solution, in such case, will shift from the Adriatic to Africa and Asia Minor, where Italy's interests may be furthered by concessions at the hands of her Allies in the Treaty of London. The Turkish Empire is to be divided. Italy's aspirations in Asia Minor are well known. Under the mandatary system, it is reported, Great Britain and France would not be averse to giving Italy a mandate for the Turkish coast on the Mediterranean in the Adalia region. Italy's aspirations in Asia Minor, however, are centered in the city of Smyrna and the valley of the River Meander. She still retains the Dodocanese Islands, off the coast of Smyrna, held as pledge for the fulfillment by Turkey of certain provisions of the treaty that ended the Italo-Turkish War. The African concessions which Italy is expected to receive are portions of British Somaliland and French Somaliland, which will consolidate Italy's present colonial project in Eritrea and Somaliland.

SHANTUNG

Provisions of the Peace Treaty.—Articles 156 and 157 of the Treaty of Peace with Germany read as follows:

Article 156.—Germany renounces, in favor of Japan, all her rights, titles and privileges—particularly those concerning the territory of Kiao-chau, railway mines and submarine cables, which she acquired in virtue of the treaty concluded by her with China on March 6, 1898, and of all other arrangements relative to the Province of Shantung.

All German rights in the Tsing-tao-Tsinan-Fu Railway, including its branch lines, together with its subsidiary property of all kinds, stations, shops, fixed and rolling stock, mines, plant and material for the exploitation of the mines are and remain acquired by Japan, together with all rights and privileges attaching thereto.

The German State submarine cables from Tsing-tao to Shanghai and from Tsing-tao to Che Foo, with all the rights

which Germany might claim in consequence of the works or improvements made or of the expenses incurred by her, directly or indirectly in connection with this territory, are and remain acquired by Japan, free and clear of all charges and encumbrances.

Article 158.—Germany shall hand over to Japan within three months from the coming into force of the present treaty the archives, registers, plans, title deeds and documents of every kind, wherever they may be, relating to the administration, whether civil, military, financial, judicial or other, of the territory of Kiao-chau.

Within the same period Germany shall give particulars to Japan of all treaties, arrangements or agreements relating to the rights, title or privileges referred to in the two preceding articles.

These are the provisions for the disposal of German rights in Shantung finally agreed upon by the Peace Conference, the formulation of which almost disrupted the proceedings among the Allies; threatened the life of the League of Nations; caused the United States Senate to propose, first, textual changes so drastic so as to substitute the word "China" for "Japan," and later to draft a reservation having the same effect as regards the United States (see I, *American History*); and finally determined China to refuse to sign the general Treaty of Peace with Germany.

The Secret Treaties of Allies with Japan.—The Shantung clauses have their origin in secret treaties entered into by Japan, on the one hand, and Great Britain, France, Russia, and Italy on the other. They were the immediate inducement for Japan's consent to China's declaring war against Germany. Not that China's was an unwilling entry on the side of the Allies, for in 1914, and again in 1915, China indicated her willingness to declare war against the enemy. She was restrained in each instance by Japan, who feared China's military participation in the war and diplomatic representation at the peace table as an equal. Moreover, Japan decided to anticipate China in ousting Germany from the Shantung Peninsula. In November, 1915, when China desired to align herself with the Allies, Baron Ishii, then Japanese Minister of Foreign Affairs, said to the European Ambassadors at Tokio: "Japan could not view without apprehension the moral awakening of 400,000,000

II. INTERNATIONAL RELATIONS

Chinese which would result from their entering the war." The entry of the United States into the war and the American invitation to all neutrals to declare themselves against Germany and participate in the war, however, caused an enforced departure in Japanese policy with respect to China.

The secret treaties were made in February and March, 1917, two and a half years after Japan entered the war, and were urged upon her European allies by Japan at a time when the military situation confronting them was the darkest. Briefly, the European Allies undertook to support Japan's claims to Germany's rights in Shantung and the German islands north of the Equator when these questions should come before the Peace Conference. These agreements were reluctantly disclosed in February, 1919, at a plenary session of the Council of Ten, when the question of mandatories was first under discussion. President Wilson was then informed by Baron Makino that Japan had two years before received the assurance of Great Britain, France, Russia, and Italy that the German islands north of the Equator would go to Japan outright. Upon Mr. Wilson's inquiring whether there were other secret agreements, the Allies admitted that the German rights in Shantung were also promised to Japan.

The Case for China.—The Chinese delegates sought to nullify the treaties of 1915 between China and Japan (*A. Y. B.*, 1915, p. 109) whereby Japan fastened her political and economic hold on Chinese territory, particularly in the Province of Shantung. They boldly asked the Conference for abrogation, asserting that the Sino-Japanese treaties of 1915 were, in principle, similar to the Treaties of Brest-Litovsk and of Bucharest. The Chinese treaties, they asserted, were procured under duress, as a result of a Japanese ultimatum as unjustified and as peremptory as that issued by Austria-Hungary to Serbia. A revision in these circumstances carried with it a rejection of Japan's claim to Shantung and the cession to China of the German rights in the peninsula. The Chinese delegates submitted the following specific reasons for abrogation of the treaties:

Because the treaties are and constitute one entire transaction or entity arising out of the war, and they attempt to deal with matters whose proper determination is entirely a right interest of the Peace Conference.

Because they contravene the Allied formula of justice and the principles now serving as the guiding rules of the Peace Conference in its working out of the settlement of the affairs of nations in order to prevent or minimize the chances of war in the future.

Because specifically they violate the territorial integrity and political independence of China as guaranteed in the series of conventions and agreements severally concluded by Great Britain, France, Russia, and the United States with Japan.

Because they were negotiated in circumstances of intimidation and concluded under the Japanese ultimatum of May 7, 1915.

Because they are lacking in finality, being so regarded by Japan, who sought to make them final by negotiating, before China was suffered to enter the war in association with the Allies and the United States, a set of secret agreements at variance with the principles accepted by the belligerents as the basis of the peace settlement.

The Chinese delegates were frank in preferring Germany in Shantung to Japan, if that were the only alternative, because Shantung is far removed from Germany, whereas in the case of Japan there was the added danger of her strongly fortified position in Korea and Manchuria.

Japan's Legal Status.—Japan relied entirely on her legal status, which was assured, first, by the treaties with her European allies; second, by the treaties of 1915 with China; and third, by right of conquest. In reply to China's complaint of duress, it was stated that the modern history of China showed that most, if not all of her foreign treaties were negotiated and concluded, more or less, under duress, and that her consent in most cases was obtained by military or naval demonstration and without any concession by China.

The promises of Great Britain and those of France were explicit. In the case of Great Britain the hope was expressed of reciprocal support by Japan of British claims to German islands that lie to the south of the Equator. The British assurance was in the form of a note by the Ambassador at Tokio, Conyngham Greene, dated Feb. 16, 1917, as follows:

His Britannic Majesty's Government accede with pleasure to request of the Japanese Government for an assurance that they will support Japan's claims in regard to the disposal of Germany's rights in Shantung and possessions in the islands north of the Equator on the occasion of the Peace Conference; it being understood that the Japanese Government will in the eventual peace settlement treat in the same spirit Great Britain's claims to the German islands south of the Equator.

The French assurance imposed as a condition Japan's promise to induce China to declare war against Germany. It was given in March, 1917, and was in the following terms:

The Government of the French Republic is disposed to give the Japanese Government its accord in regulating at the time of the peace negotiations questions vital to Japan concerning Shantung and the German islands in the Pacific north of the Equator. It also agrees to support the demands of the Imperial Japanese Government for the surrender of the rights Germany possessed before the war in this Chinese province and these islands.

M. Briand demands, on the other hand, that Japan give its support to obtain from China the breaking of its diplomatic relations with Germany and that it give this act desirable significance.

The Russian Government in February, 1917, committed itself very briefly to the support of Japanese claims. The Italian Government gave the same assurances.

Japan's Promise of Restoration.—The Shantung clauses contain no provision obligating Japan to restore her concessions to China. So far as the Treaty of Peace is concerned, Japan succeeds to all the "rights, title, and privileges" of Germany in the province, without limitation or qualification. The Japanese delegates, it is understood, have given solemn assurances in behalf of their Government "to hand back the Shantung Peninsula in full sovereignty to China, retaining only the economic privileges granted to Germany and the right to establish a settlement under the usual conditions at Tsing-Tao." This oral promise is the only assurance the Chinese have of eventually receiving the sovereign rights in one of their provinces. Japan also undertook orally to remove all her troops remaining in Shantung "at the earliest possible time." She refused to bind herself in writing as to the fact of restitution or to state defi-

nately in her oral assurances the exact or approximate date when restitution would be made, on the ground that such an undertaking or promise would be a reflection on the good faith of her intentions. Even with a recession of sovereignty to China, Japan would still be in a position of paramountcy in the Peninsula. With the retention of economic and military privileges the disparity between China and Japan would still exist.

Significance of the Shantung Privileges.—The rights, interests, and concessions of Germany in Shantung to which Japan succeeds includes the leased territory of Kiao-chau within the harbor of Tsing-tao, the trans-Shantung Railway, known as the Tsing-tao-Chinen Railway or Kiao-chau-Tsinan-r'u Railway, and other railways and mining rights in the province. These pass to a power that already possesses a military base on Chinese soil at Port Arthur. The Chinese assert that by these transfers Japan, even with restitution of Chinese sovereignty, would be in control of North China through the Shantung railways and the Manchurian railways, and thereby be in a position to isolate Peking from southern and centre China. Strategically the Bay of Kiao-chau commands one of the gateways of North China. By means of the Tsing-ta-Chinen Railway, which connects with the Tien-tsin-Peking railway systems, the quickest approach from the sea to the Chinese capital is controlled. The military advantages and the economic ascendancy of Japan would remain unimpaired even in the event of her carrying out her pledge of political restitution.

Japan's Diplomatic Strategy.—The Japanese delegates came to the Peace Conference with two objectives. The first was recognition by the white peoples of Japan's racial equality; the second, sanction by the Conference of her rights in Shantung. The Japanese delegation took little part in the discussion of the many problems that confronted the Conference. They timed their proposals so as to afford them every possibility of success. The recognition of racial equality as pressed by Japan failed of adoption (see *The League of Nations, supra*),

II. INTERNATIONAL RELATIONS

and Baron Makino, the Japanese spokesman, said that her disappointment might lead her to refuse membership in the League of Nations. Precisely at this time Japan proposed her second objective, Shantung. Unlike Fiume, the matter of Shantung required solution because it was to be incorporated in the German Treaty. The stage was set when Italy was refused her claims to Fiume and withdrew her delegates from Paris. Fiume was reserved for disposition in the Austrian Treaty; it was to be ceded by Austria to the Allied and Associated Powers and, in the event of disagreement, could be left to the League of Nations.

The Conference was confronted with the demand of Japan for her second and probably her most important proposal one week after Italy's withdrawal. The alternative of placating Japan and saving the League, or of deciding in favor of China and driving both Japan and Italy into squaring their policies with those other powers whose interest it was to strike a wedge into Allied camp, was necessarily decided in favor of Japan by the Peace Conference. It is no mere coincidence that the matter of Shantung came up the very day, April 29, when the German delegation arrived at Versailles. The Shantung decision was made on the next day. The timing of the proposals with events most auspicious to the Japanese for their adoption, and most dangerous to the Allies for their rejection, was a brilliant stroke of Japanese diplomacy.

Refusal of China to Sign the Treaty with Germany.—Although assurances were given the Chinese delegates that Japan's tenure in Shantung would not be long, they declared that their instructions were not to sign the Treaty unless they could make reservations. This the Allied statesmen refused to permit. A request for permission to state their objections at the time of signing was also refused. They then offered to sign if they were assured by the Council of Four that the Shantung case would be later heard by the League of Nations. This request also was refused. Thereupon the Chinese delegates declined to sign the treaty, basing their decision on the following grounds:

First.—That the delegation was unable to obtain definite assurances that Japan would give up the Shantung Province within a short time, and that the Japanese tenure would not be permitted to run for the remainder of the 99-year period under which Germany held the territory.

Second.—That assurances were lacking that Japan would relinquish control of the railroad from Tsing-tao to Tsin Auru, the 'Tsing-tao-Shanghai-Chefoo' cables, and facilities at the port of Kiaochow.

The Chinese delegation on the day of the signing of the Treaty of Versailles, June 28, issued a statement setting forth their reasons for refusing to sign, as follows:

After failing in all earnest attempts at conciliation, and after seeing every honorable compromise rejected, the Chinese delegation had no course open save to adhere to the path of duty to their country. Rather than accept by their signatures the Shantung articles in the Treaty against which their sense of right and justice militated, they refrained from signing the Treaty altogether. The Chinese plenipotentiaries regret having to take a course which appears to mar the solidarity of the Allied and Associated Powers, but they are firmly of the opinion, however, that responsibility for this rests not with themselves, who had no other honorable course, but rather with those who, it is felt, unjustly and unnecessarily deprived them of the right of making a declaration to safeguard against any interpretation which might preclude China from asking for reconsideration of the Shantung question at a suitable moment in the future, in the hope that the injustice to China might be rectified later in the interest of permanent peace in the Far East. The Peace Conference having denied China justice in the settlement of the Shantung question, and having in effect prevented the delegation from signing the Treaty without sacrificing their sense of right, justice, and patriotic duty, the Chinese delegates submit their case to the imperial judgment of the world.

Japan's Interpretation of Conditional Return.—In August, Viscount Uchida, Japanese Minister of Foreign Affairs, issued a statement which tended to indicate that the return of Shantung was conditional upon a future arrangement between China and Japan in pursuance of their treaty of 1915. In part the statement was:

Japan now claims as one of the essential conditions of peace that the leased territory of Kiaochow should be surrendered to her without condition or compensation. At the same time, abiding faithfully by the pledge which she gave to China in 1915, she is quite willing to

II. INTERNATIONAL RELATIONS

restore to China the whole territory in question and to enter upon negotiations with the Government of Peking as to the arrangement necessary to give effect to that pledge as soon as possible after the Treaty of Versailles shall have been ratified by Japan.

President Wilson immediately issued a statement of "clarification" upon this interpretation, which, he said, "ought to be relieved of every shadow of obscurity or misapprehension." The President made it clear that the oral undertaking of Japan was in no way dependent upon the execution of the agreement of 1915 between China and Japan:

Indeed, I felt it my duty to say that nothing that I agreed to must be construed as an acquiescence on the part of the Government of the United States in the policy of the notes exchanged between China and Japan in 1915 and 1918, and reference was made in the discussion to the enforcement of the agreements of 1915 and 1918 only in case China failed to cooperate fully in the carrying out the policy outlined in the statement of Baron Makino and Viscount Chinda.

THE SARRE BASIN

The problem of the Sarre Basin presented aspects which, from the viewpoint of France, were vital to her interests. As Shantung was to Japan and the Adriatic to Italy, the Sarre Basin was to France. Each of these powers urged their respective solutions as the *sine qua non* of adhesion to the peace and to the League of Nations. French policy centered mainly on two objections, military security and replacement, as well as reparation by Germany for devastation, of her industrial resources. The first she realized by the Anglo-American-French defensive alliance (see *infra*); the second she sought to attain by outright possession of the German coal mines in the Sarre. Her demands for outright cession were refused, but

a compromise was reached whereby the Basin was placed under the *régime* of the League of Nations for a period of 15 years. The district was transferred, not to French sovereignty, but to the control of the League of Nations. This solution presents the double advantage of preventing annexation and at the same time giving possession to France of the Sarre coal fields as immediate and certain compensation for the wanton destruction of her northern coal mines. The economic unity of the coal district of the Sarre is sought to be maintained. During the 15 years the population will, under the supervision of the League of Nations, have control of its own local affairs. At the end of this term provision is made for their complete freedom to decide whether they wish union with Germany, union with France, or a continuance of the *régime* under the League of Nations.

The solution had aspects of reparation which in the particular form it took were definite and visible symbols of the wrong Germany had committed and of the retribution that was exacted of her. It was not a case of specified or unspecified amounts of coal. The complete and immediate transfer by Germany of the coal mines adjacent to the French frontier was, in the language of M. Clemenceau, "a more prompt, secure, and business-like method of compensation for the destruction of the French coal mines." A later concession made to Germany by the Peace Conference was that Germany might create a prior charge upon her assets or revenues for the payment for the mines in the Sarre region if the plebiscite goes against France. If, however, the sum agreed upon is not paid within a year from the day it is due, the Reparation Commission is to effect payment under instructions from the League of Nations.

THE TREATY WITH GERMANY

Presentation of the Terms.—The German Peace Delegation on May 7 was received by the Peace Conference in the great hall of Trianon Palace at Versailles, and received the Treaty containing the conditions which the Allied and Associated Powers imposed as necessary and important for the

conclusion of peace. Officially it is known as the Treaty of Versailles. Twenty-two belligerent powers presented a united front to the enemy delegation, which was headed by Count von Brockdorff-Rantzau. Premier Clemenceau opened the session by addressing the Germans as follows:

II. INTERNATIONAL RELATIONS

You have asked for peace. We are ready to give you peace. We shall present to you now a book which contains our conditions. You will have every facility to examine these conditions and the time necessary for it.

He then gave notice of the procedure which the Conference had adopted for discussion. No oral discussion was to be permitted. The observations of the German delegates were to be made in writing. Two weeks was the maximum period within which such written observations were to be made and presented in English and French. Before the expiration of the two weeks, nevertheless, the German delegates could send their reply on particular headings of the Treaty or ask questions in regard to them. After an examination of these observations, the Supreme Council would send their answer in writing to the German delegates and determine the period within which "the final world-wide answer must be given by this delegation." Count von Brockdorff-Rantzau accepted the treaty for immediate examination, after making a long statement in which he disclaimed for Germany the sole responsibility for the war.

German Efforts to Negotiate.—The first move of the German delegation was to attempt to open a general discussion of the Treaty so as to change its provisions in principle. In their first note, dated May 10, they declared that on essential points the basis of the peace of right agreed upon between the belligerents has been abandoned: "The draft of the Treaty contains demands which no nation could endure. Moreover, our experts hold that many of them could not possibly be carried out." M. Clemenceau promptly replied that the Allied and Associated Powers "can admit no discussion of their right to insist on the terms of the peace substantially as drafted. They can consider only such practical suggestions as the German Plenipotentiaries may have to submit."

Two other German notes followed on May 13 and 16, in which the chief delegate charged that German territories had been made "the subject of bargains between one sovereignty and another as though they were chattels and pawns in a game." Emphasis was laid on the provisions concerning

the Sarre Basin, over which Germany was to lose her sovereign rights pending a plebiscite at the end of 15 years to determine whether it should revert to Germany, go to France, or remain under the rule of the League of Nations. Recognizing that compensation must be accorded France for the destruction of her coal resources, the Germans proposed a scheme of compensation in coal tons from German mines in general until such time as the devastated French mines should be repaired. As to Belgium, the Germans renewed their early war proposals "to make full reparation for the damages suffered by her." They saw "no reason why she [Germany] is to be forced to cede Prussian Moresnet and the districts of Eupen and Malmedy." These notes brought a sharp and emphatic reply from M. Clemenceau, dated May 24, as to the attempt to subject German territory to barter. The French Premier informed the German delegation that the "wishes of the population of all the territories in question will be consulted and the procedure followed in such consultation has been carefully settled with special regard to local conditions." The proposal of handing over shares in German mines situated in German territory in lieu of the transfer of the Sarre Basin was dismissed as unacceptable.

There were other German notes on international labor legislation and on a plan for the League of Nations. The great effort of the German delegation to enter into a discussion of principles and to attain to a position of equality as negotiators at the peace table began on May 29, when a series of counter-proposals were set forth. Two separate documents on legal and financial questions were presented, which totalled 60,000 words. The Treaty was characterized as "the victorious violence of our enemies" and the assertion was made that "the more deeply we penetrate into the spirit of the Treaty, the more convinced we become of the impossibility of carrying it out." Oral negotiations were demanded, also immediate admission to the League of Nations. An analysis was made of the territorial changes, and the conclusion advanced that the right of self-determination had been violated throughout the Treaty. Ger-

many would renounce her sovereign rights in Alsace-Lorraine, but a free plebiscite was demanded. She was ready to subject all her colonies to administration by the community of the League of Nations if she was recognized as its mandatary. She professed to be wholly unable to accept the Reparation Commission set up by the Allies. She proposed an indemnity of 100,000,000,000 marks without interest, provided the other terms as to colonies, overseas trade, and territories were accepted. As to the deliveries of ships, raw materials, and machinery demanded, she could meet the Allied claims only in part, largely because of decreased production. She agreed to freedom of traffic on German rivers and within Germany, but on condition that there be no infringement of German sovereignty. She refused to submit the Kaiser for trial on the ground that no German subject could be brought before a foreign court without established law or legal basis. Similarly, she could not agree to extradite other subjects accused of violations of the laws and customs of war. Instead, she proposed an international court of neutrals to judge the fact of crime, the punishment to remain with her national courts. A bitter protest was entered against the occupation of the Rhine provinces, and the demand was made that all Allied troops be withdrawn within six months of the peace. The labor clauses were declared to be unsatisfactory, and an international conference was proposed to examine the Allied proposals, the German counter-proposals, and the Berne resolutions (see XV, *Labor*).

The Final Treaty.—The Germans shot their bolt in these counter-proposals. The negotiations reached their last stage soon after. The final reply of the Allies was delivered on June 16. Further negotiations would not avail, and the Germans required to make a declaration of acceptance or rejection within five days.

If they declare within the period that they are prepared to sign the Treaty as it stands, arrangements will be made for the immediate signature of the peace at Versailles. In default of such declaration . . . the armistice will then terminate and the Allied and Associated Powers will take such steps as they think needful to force their terms.

The principles of the conditions as originally laid down in the Treaty draft were upheld. No departure was made from them. Certain modifications in detail, however, were permitted. They included the following: a plebiscite for Upper Silesia, with guarantees of coal from that region; frontier rectifications in West Prussia; the omission of a third zone from the Schleswig plebiscite; a temporary increase of the permitted strength of the German Army from 100,000 to 200,000; a declaration of intention to submit within a month of the Treaty signature a list of those accused of violation of the laws and customs of war; an offer to coöperate with a German Commission on Reparations and to receive suggestions for discharging the obligation; certain detailed modifications in the financial, economic, and ports and waterways clauses, including the abolition of the proposed Kiel Canal Commission; and assurance to Germany of membership in the League of Nations in the early future if she fulfills her obligations.

Germany's Acceptance.—Her counter-proposals rejected, Germany sought to assent to the conditions of the Treaty within the five-day period allotted to her by an acceptance with qualifications. She informed the Allies that she was ready to sign, without recognizing that the German Government was the author of the war and without undertaking the responsibility of handing over for trial the designated individuals who were accused of breach of the laws and customs of war. She also forwarded the "modest request" that within two years the entire Treaty as signed should be submitted to the League of Nations for further examination and revision. This conditional acceptance was immediately refused by the Allies.

They can accept or acknowledge no qualification or reservation and must require of the German representatives an unequivocal decision as to their purposes to sign and accept as a whole, or not to sign and accept the Treaty as formulated.

On June 23, shortly before the expiration of the time, as extended, within which Germany was to give her acceptance or rejection of the Treaty the German Government sent its consent

II. INTERNATIONAL RELATIONS

to sign the Treaty as submitted (see also III, *Germany*). The note of acceptance was signed by Dr. Haniel von Haimhausen, who succeeded Count von Brockdorff-Rantzau as head of the German delegation. The acceptance was as follows:

The Minister of Foreign Affairs has instructed me to communicate to your Excellency the following:

It appears to the Government of the German Republic, in consternation at the last communication of the Allied and Associated Governments, that these Governments have decided to wrest from Germany by force acceptance of the peace conditions, even those, which, without presenting any material significance, aim at divesting the German people of their honor.

No act of violence can touch the honor of the German people. The German people, after frightful suffering in these last years, have no means of defending themselves by external action.

Yielding to superior force and without renouncing in the meantime its own view of the unheard of injustice of the peace conditions, the Government of the German Republic declares that it is ready to accept and sign the peace conditions imposed.

On June 28 Germany and the Allied and Associated Powers signed the Treaty of Versailles in the same imperial hall where the Germans had humbled the French so ignominiously 48 years before.

Summary of the Treaty with Germany.—The Treaty of Peace with Germany is the longest treaty ever drawn. It totals about 80,000 words, divided into 15 main sections, and represents the combined product of over a thousand experts working continually through a series of commissions for three and a half months since Jan. 18. The Treaty with Germany does not deal with questions affecting Austria, Bulgaria, and Turkey except as binding Germany to accept any agreement reached with those former allies.

By the terms of the Treaty, Germany restores Alsace-Lorraine to France; accepts the internationalization of the Sarre Basin temporarily and of the city of Danzig permanently; agrees to territorial changes toward Belgium and Denmark and in East Prussia; cedes most of Upper Silesia to Poland; and renounces all territorial and political rights outside of Europe as to her own and her allies, and especially to Morocco, Egypt,

Siam, Liberia and Shantung. She also recognizes the total independence of German-Austria, Czecho-Slovakia and Poland. The new boundaries of Germany may be described approximately as follows: present boundary with Holland; with Belgium, east of neutral Moresnet and along the eastern boundary of Kreise, by Eupen and Malmédy; the present frontier with Luxembourg; the frontier with France of 1870, that is, the eastern boundary of Alsace-Lorraine with reservations as regards the Sarre Basin; the present frontier with Switzerland; the frontier of 1914 with Austria to the angle east of Neustadt. Slices of territory including parts of Silesia, West Prussia, most of Posen, and part of East Prussia are to be taken away from the eastern frontier sections of Germany and turned over to Poland. Denmark will have the opportunity of regaining from Germany the lost province of Schleswig through a plebiscite, after which a new frontier will be laid between Germany and Denmark.

It is estimated that in colonies and foreign dependencies alone Germany loses an area of 1,027,820 sq. miles, with a white population of 24,389 and an estimated native population of 12,041,603, in Africa, Asia, and in the Pacific. It is estimated also that Germany loses possession of or immediate control over territory in Europe amounting to 47,787 sq. miles.

The following is the summary of the Peace Treaty issued to the press by the American delegation:

Preamble

The Preamble names as parties of the one part the United States, the British Empire, France, Italy, and Japan, described as the Five Allied and Associated Powers, and Belgium, Bolivia, Brazil, China, Cuba, Ecuador, Greece, Guatemala, Haiti, the Hedjaz, Honduras, Liberia, Nicaragua, Panama, Peru, Poland, Portugal, Rumania, Serbia, Siam, Czecho-Slovakia, and Uruguay, who with the five above are described as the Allied and Associated Powers, and on the other part, Germany.

It states that: "Bearing in mind that on the request of the then Imperial German Government an armistice was granted on November 11, 1918, by the Five Allied and Associated Powers in order that a treaty of peace might be concluded with her, and whereas the Allied and Associated Powers being equally desirous that the war in which they were successively involved directly or indirectly and

II. INTERNATIONAL RELATIONS

which originated in the declaration of war by Austria-Hungary on July 28, 1914, against Serbia, the declaration of war by Germany against Russia on August 1, 1914, and against France on August 3, 1914, and in the invasion of Belgium, should be replaced by a firm, just, and durable peace," the plenipotentiaries, "having communicated their full powers found in good and due form have AGREED AS FOLLOWS:

"From the coming into force of the present Treaty the state of war will terminate. From that moment and subject to the provisions of this Treaty official relations with Germany, and with each of the German States, will be resumed by the Allied and Associated Powers."

SECTION I. LEAGUE OF NATIONS

[The Covenant of the League of Nations constitutes Section I.]

SECTION II. BOUNDARIES OF GERMANY

Germany cedes to France Alsace-Lorraine, 5,600 sq. miles, in the southwest and to Belgium two small districts between Luxembourg and Holland, totalling 382 sq. miles. She also cedes to Poland the southeastern tip of Silesia beyond and including Oppeln, most of Posen, and West Prussia, 21,686 sq. miles, East Prussia being isolated from the main body by a part of Poland. She loses sovereignty over the northeastmost tip of East Prussia, 40 sq. miles north of the river Memel, and the internationalized areas about Danzig, 729 sq. miles, and the basin of the Sarre, 738 sq. miles, between the western border of the Rhenish Palatine of Bavaria and the southeast corner of Luxembourg. The Danzig area consists of the V between the Nogat and Vistula Rivers made a W by the addition of a similar V on the west including the city of Danzig. The southeastern third of East Prussia and the area between East Prussia and the Vistula north of lat. 53° 30' is to have its nationality determined by popular vote, 5,788 sq. miles, as is to be the case in part of Sleswig, 2,787 sq. miles.

Belgium

Germany is to consent to the abrogation of the treaties of 1839 by which Belgium was established as a neutral state, and to agree in advance to any convention with which the Allied and Associated Powers may determine to replace them. She is to recognize the full sovereignty of Belgium over the contested territory of Moresnet and over part of Prussian Moresnet, and to renounce in favor of Belgium all rights over the circles of Eupen and Malmedy, the inhabitants of which are to be entitled within six months to protest against this change of sovereignty either in whole or in part, the final decision to be reserved to the League of Nations. A commission is to settle the details of the frontier, and various regulations for change of nationality are laid down.

Luxembourg

Germany renounces her various treaties and conventions with the Grand

Duchy of Luxembourg, recognizes that it ceased to be a part of the German Zollverein from January 1, 1919, renounces all right of exploitation of its railways, adheres to the abrogation of its neutrality, and accepts in advance any international agreement as to it reached by the Allied and Associated Powers.

Left Bank of the Rhine

As provided in the military clauses, Germany will not maintain any fortifications or armed forces less than 50 kilometres to the east of the Rhine, hold any maneuvers, or maintain any works to facilitate mobilization. In case of violation, "she shall be regarded as committing a hostile act against the Powers who sign the present Treaty and as intending to disturb the peace of the world." "By virtue of the present Treaty, Germany shall be bound to respond to any request for an explanation which the Council of the League of Nations may think it necessary to address to her."

Alsace-Lorraine

After recognition of the moral obligation to repair the wrong done in 1871 by Germany to France and the people of Alsace-Lorraine, the territories ceded to Germany by the Treaty of Frankfurt are restored to France with their frontiers as before 1871, to date from the signing of the armistice, and to be free of all public debts.

Citizenship is regulated by detailed provisions distinguishing those who are immediately restored to full French citizenship, those who have to make a formal application therefor, and those for whom naturalization is open after three years. The last-named class includes German residents in Alsace-Lorraine, as distinguished from those who acquired the position of Alsace-Lorrainers as defined in the Treaty.

All public property and all private property of German ex-sovereigns passes to France without payment or credit. France is substituted for Germany as regards ownership of the railroads and rights over concessions of tramways. The Rhine bridges pass to France, with the obligation for their upkeep.

For five years manufactured products of Alsace-Lorraine will be admitted to Germany free of duty to a total amount not exceeding in any year the average of the three years preceding the war, and textile materials may be imported from Germany to Alsace-Lorraine and reexported free of duty. Contracts for electric power from the Right Bank must be continued for ten years.

For seven years, with possible extension to ten, the ports of Kehl and Strasbourg shall be administered as a single unit by a French administrator appointed and supervised by the Central Rhine Commission. Property rights will be safeguarded in both ports, and equality of treatment as respects traffic assured the nationals, vessels, and goods of every country.

Contracts between Alsace-Lorrainers and Germans are maintained save for France's right to annul on grounds of

II. INTERNATIONAL RELATIONS

public interest. Judgments of courts hold in certain classes of cases, while in other a judicial exequatur is first required. Political condemnations during the war are null and void, and the obligation to repay war fines is established as in other parts of Allied territory.

Various clauses adjust the general provisions of the Treaty to the special conditions of Alsace-Lorraine, certain matters of execution being left to conventions to be made between France and Germany.

The Sarre

In compensation for the destruction of coal mines in northern France and as payment on account of reparation, Germany cedes to France full ownership of the coal mines of the Sarre Basin, with their subsidiaries, accessories, and facilities. Their value will be estimated by the Reparation Commission and credited against that account. The French rights will be governed by German law in force at the armistice, excepting war legislation, France replacing the present owners, whom Germany undertakes to indemnify. France will continue to furnish the present proportion of coal for local needs and contribute in just proportion to local taxes. The basin extends from the frontier of Lorraine, as reannexed to France, north as far as St. Wendel, including on the west the valley of the Sarre as far as Saarholzbach, and on the east the town of Homburg.

In order to secure the rights and welfare of the population and guarantee to France entire freedom in working the mines, the territory will be governed by a Commission appointed by the League of Nations, and consisting of five members, one French, one a native of the Sarre, and representing three different countries other than France and Germany. The League will appoint a member of the Commission as chairman, to act as executive of the Commission. The Commission will have all powers of government formerly belonging to the German Empire, Prussia, and Bavaria; will administer the railroads and other public services, and have full power to interpret the Treaty clauses. The local courts will continue, but subject to the Commission. Existing German legislation will remain the basis of law, but the Commission may make modifications after consulting a local representative assembly which it will organize. It will have the taxing power, but for local purposes only; new taxes must be approved by this assembly. Labor legislation will consider the wishes of the local labor organizations and the labor programme of the League. French and other labor may be freely utilized, the former being free to belong to French unions. All rights acquired as to pensions and social insurance will be maintained by Germany and the Sarre Commission. There will be no military service but only a local *gendarmérie* to preserve order. The people will preserve their local assemblies, religious liberties, schools and language, but may vote only for local assemblies. They will keep their present nationality, except so far as

individuals may change it. Those wishing to leave will have every facility with respect to their property. The territory will form part of the French customs system, with no export tax on coal and metallurgical products going to Germany, or on German products entering the Basin, and for five years no import duties on products of the Basin going to Germany or German products coming into the Basin for local consumption. French money may circulate without restriction.

After 15 years a plebiscite will be held by communes to ascertain the desires of the population as to continuance of the existing *régime* under the League of Nations, union with France, or union with Germany. The right to vote will belong to all inhabitants over 20 resident therein at the signature. Taking into account the opinions thus expressed, the League will decide the ultimate sovereignty. In any portion restored to Germany the German Government must buy out the French mines at an appraised valuation; if the price is not paid within six months thereafter, this portion passes finally to France. If Germany buys back the mines, the League will determine how much of the coal shall be annually sold to France.

German-Austria

Germany recognizes the independence of German-Austria as inalienable except by consent of the League of Nations.

Czecho-Slovakia

Germany recognizes the entire independence of the Czecho-Slovak State, including the autonomous territory of the Ruthenians south of the Carpathians, and accepts the frontiers of this State as to be determined, which in the case of the German frontier shall follow the frontier of Bohemia in 1914. The usual stipulations as to acquisition and change of nationality follow.

Poland

Germany cedes to Poland the greater part of Upper Silesia [subject to a plebiscite], Posen, and the province of West Prussia on the left bank of the Vistula. A field boundary commission of seven, five representing the Allied and Associated Powers and one each representing Poland and Germany shall be constituted within 15 days of the Peace to delimit this boundary. Such special provisions as are necessary to protect racial, linguistic, or religious minorities and to assure freedom of transit and equitable treatment of commerce of other nations shall be laid down in a subsequent treaty between the Five Allied and Associated Powers and Poland [see *supra*].

East Prussia

The southern and the eastern frontier of East Prussia as facing Poland is to be fixed by plebiscites, the first in the Regency of Allenstein between the southern frontier of East Prussia and the northern frontier of Regierungsbesirk Allenstein from where it meets the boundary be-

II. INTERNATIONAL RELATIONS

tween East and West Prussia to its junction with the boundary between the circles of Oletsko and Augersburg, thence the northern boundary of Oletsko to its junction with the present frontier, and the second in the area comprising the circles of Stuhn and Rosenberg and the parts of the circles of Marienburg and Marienwerder east of the Vistula.

In each case German troops and authorities will move out within 15 days of the Peace and the territories be placed under an international Commission of five members appointed by the Five Allied and Associated Powers, with the particular duty of arranging for a free, fair, and secret vote. The Commission will report the results of the plebiscites to the Five Powers with a recommendation for the boundary and will terminate its work as soon as the boundary has been laid down and the new authorities set up.

The Five Allied and Associated Powers will draw up regulations assuring East Prussia full and equitable access to and use of the Vistula. A subsequent convention, of which the terms will be fixed by the Five Allied and Associated Powers, will be entered into between Poland, Germany, and Danzig, to assure suitable railroad communication across German territory on the right bank of the Vistula between Poland and Danzig, while Poland shall grant free passage from East Prussia to Germany.

The north-eastern corner of East Prussia about Memel is to be ceded by Germany to the Allied and Associated Powers, the former agreeing to accept the settlement made, especially as regards the nationality of the inhabitants.

Danzig

Danzig and the district immediately about it is to be constituted into the "Free City of Danzig" under the guarantee of the League of Nations. A High Commissioner appointed by the League of Nations and resident of Danzig shall draw up a constitution in agreement with the duly appointed representatives of the city and shall deal in the first instance with all differences arising between the City and Poland. The actual boundaries of the city shall be delimited by a commission appointed within six months from the peace and to include three representatives chosen by the Allied and Associated Powers, and one each by Germany and Poland.

A convention, the terms of which shall be fixed by the Five Allied and Associated Powers, shall be concluded between Poland and Danzig which shall include Danzig within the Polish customs frontiers, though with a free area in the port; insure to Poland the free use of all the City's waterways, docks, and other port facilities, the control and administration of the Vistula and the whole through railway system with the city, and postal, telegraphic, and telephonic communication between Poland and Danzig; provide against discrimination against Poles within the City, and place its foreign relations and the diplomatic protection of its citizens abroad in charge of Poland.

Denmark

The frontier between Germany and Denmark will be fixed in accordance with the wishes of the population. Ten days from the Peace, German troops and authorities shall evacuate the region north of the line running from the mouth of the Schlei, south of Kappel, Schleswig, and Friedrichstadt along the Eider to the North Sea south of Tonning; the Workmen's and Soldier's Councils shall be dissolved; and the territory administered by an international Commission of Five, of whom Norway and Sweden shall be invited to name two.

The Commission shall insure a free and secret vote in three [afterward reduced to two] zones. That between the German-Danish frontier and a line running south of the island of Alsens, north of Flensburg and south of Tondern to the North Sea north of the island of Sylt will vote as a unit within three weeks after the evacuation. Within five weeks after this vote the second zone, whose southern boundary runs from the North Sea south of the island of Fehr to the Baltic south of Sygum, will vote by communes. Two weeks after that vote the third zone running to the limit of evacuation will also vote by communes. The International Commission will then draw a new frontier on the basis of these plebiscites and with due regard for geographical and economic conditions. Germany will renounce all sovereignty over territories north of this line in favor of the Associated Governments, who will hand them over to Denmark.

Heligoland

The fortifications, military establishments, and harbors of the Islands of Heligoland and Dune are to be destroyed under the supervision of the Allies by German labor, and at Germany's expense. They may not be reconstructed, or any similar works built in the future.

Russia

Germany agrees to respect as permanent and inalienable the independence of all territories which were part of the former Russian Empire, to accept the abrogation of the Brest-Litovsk and other treaties entered into with the Maximalist Government of Russia, to recognize the full force of all treaties entered into by the Allied and Associated Powers with states which were a part of the former Russian Empire, and to recognize the frontiers as determined thereon. The Allied and Associated Powers formally reserve the right of Russia to obtain restitution and reparation on the principles of the present Treaty.

SECTION IV. GERMAN RIGHTS OUTSIDE EUROPE

Outside Europe Germany renounces all rights, titles and privileges as to her own or her allies' territories to all the Allied and Associated Powers, and undertakes to accept whatever measures are taken by the five Allied Powers in relation thereto.

Colonies and Overseas Possessions

Germany renounces in favor of the Allied and Associated Powers her overseas possessions with all rights and titles therein. All movable and immovable property belonging to the German Empire or to any German state shall pass to the Government exercising authority therein. These Governments may make whatever provisions seem suitable for the repatriation of German nationals and as to the conditions on which German subjects of European origin shall reside, hold property, or carry on business. Germany undertakes to pay reparation for damage suffered by French nationals in the Kamerun or its frontier zone through the acts of German civil and military authorities and of individual Germans from Jan. 1, 1900, to Aug. 1, 1914. Germany renounces all rights under the Convention of Nov. 4, 1911, and Sept. 28, 1912, and undertakes to pay to France in accordance with an estimate presented and approved by the Reparation Commission all deposits, credits, advances, etc., thereby secured. Germany undertakes to accept and observe any provisions by the Allied and Associated Powers as to the trade in arms and spirits in Africa, as well as to the General Act of Berlin, 1885, and the General Act of Brussels of 1890. Diplomatic protection to the inhabitants of former German colonies is to be given by the Governments exercising authority.

China

Germany renounces in favor of China all privileges and indemnities resulting from the Boxer Protocol of 1901 and all buildings, wharves, barracks, forts, munitions of war, ships, wireless plants, and other public property, except diplomatic or consular establishments, in the German concessions of Tien-tsin and Hankow and in other Chinese territory except Kiaochow, and agrees to return to China at her own expense all the astronomical instruments seized in 1900 and 1901. China will, however, take no measures for disposal of German property in the Legation Quarter at Peking without the consent of the Powers signatory to the Boxer Protocol.

Germany accepts the abrogation of the concessions at Hankow and Tien-tsin, China agreeing to open them to international use. Germany renounces all claims against China or any Allied and Associated Government for the internment or repatriation of her citizens in China and for the seizure or liquidation of German interests there since Aug. 14, 1917. She renounces in favor of Great Britain her State property in the British concessions at Canton, and of France and China jointly of the property of the German school in the French concession at Shanghai.

Siam

Germany recognizes that all agreements between herself and Siam, including the right of extra-territoriality, ceased July 22, 1917, and German public property except consular and diplomatic premises passes without compensa-

tion to Siam, German private property to be dealt with in accordance with the "Economic Clauses." Germany waives all claims against Siam for the seizure and condemnation of her ships, liquidation of her property, or internment of her nationals.

Liberia

Germany renounces all rights under the international arrangements of 1911-1912 regarding Liberia, more particularly the right to nominate a receiver of the customs, and disinterests herself in any further negotiations for the rehabilitation of Liberia. She regards as abrogated all commercial treaties and agreements between herself and Liberia and recognizes Liberia's right to determine the status and condition of the reestablishment of Germans in Liberia.

Morocco

Germany renounces all her rights, titles, and privileges under the Act of Algeiras and the Franco-German agreements of 1909 and 1911 and under all treaties and arrangements with the Sherifian Empire. She undertakes not to intervene in any negotiations as to Morocco between France and other Powers, accepts all the consequences of the French Protectorate there, and renounces the Capitulations. The Sherifian Government shall have complete liberty of action in regard to German nationals, and all German-protected persons shall be subject to the common law. All movable and immovable German property, including mining rights, may be sold at public auction, the proceeds to be paid to the Sherifian Government and deducted from the reparation account. Germany is also required to relinquish her interests in the State Bank of Morocco. All Moroccan goods entering Germany shall have the same privilege as French goods.

Egypt

Germany recognizes the British Protectorate over Egypt declared on Dec. 18, 1914, and renounces as from Aug. 4, 1914, the Capitulations and all the treaties, agreements, etc., concluded by her with Egypt. She undertakes not to intervene in any negotiations about Egypt between Great Britain and other Powers. There are provisions for jurisdiction over German nationals and property, and for German consent to any changes which may be made in relation to the Commission of Public Debt. Germany consents to the transfer to Great Britain of the powers given to the late Sultan of Turkey for securing the free navigation of the Suez Canal. Arrangements for property belonging to German nationals in Egypt are made similar to those in the case of Morocco and other countries. Anglo-Egyptian goods entering Germany shall enjoy the same treatment as British goods.

Turkey and Bulgaria

Germany accepts all arrangements which the Allied and Associated Powers make with Turkey and Bulgaria with ref-

II. INTERNATIONAL RELATIONS

erence to any rights, privileges or interests claimed in those countries by Germany or her nationals and not dealt with elsewhere.

Shantung

Germany cedes to Japan all rights, titles and privileges, notably as to Kiaochau, and the railroads, mines, and cables acquired by her treaty with China of March 6, 1898, and by other agreements as to Shantung. All German rights to the railroad from Tsing-tao to Tsinan-fu, including all facilities and mining rights and rights of exploitation, pass equally to Japan, and the cables from Tsing-tao to Shanghai and Chefoo, the cables free of all charges. All German state property, movable and immovable, in Kiaochau, is acquired by Japan free of all charges. [See also *supra*.]

SECTION V. MILITARY, NAVAL, AND AIR

"In order to render possible the initiation of a general limitation of armaments of all nations, Germany undertakes directly to observe the military, naval, and air clauses which follow."

Military Forces

The demobilization of the German Army must take place within two months of the Peace. Its strength may not exceed 100,000 [later increased temporarily to 200,000], including 4,000 officers, with not over seven divisions of infantry and three of cavalry, and to be devoted exclusively to maintenance of internal order and control of frontiers. Divisions may not be grouped under more than two Army Corps Headquarters Staffs.

The Great German General Staff is abolished. The army administrative service, consisting of civilian personnel not included in the number of effectives, is reduced to one-tenth the total in the 1913 budget. Employees of the German states such as customs officers, forest guards, and coast guards may not exceed the number in 1913. Gendarmes and local police may be increased only in accordance with the growth of population. None of these may be assembled for military training.

Armaments

All establishments for the manufacture, preparation, storage, or design of arms and munitions of war, except those specifically excepted, must be closed within three months of the Peace and their personnel dismissed. The exact amount of armament and munitions allowed Germany is laid down in detailed tables, all in excess to be surrendered or rendered useless. The manufacture or importation of asphyxiating, poisonous, or other gases and all analogous liquids is forbidden, as well as the importation of arms, munitions, and war materials. Germany may not manufacture such materials for foreign Governments.

Conscription

Conscription is abolished in Germany. The enlisted personnel must be maintained by voluntary enlistments for terms

of 12 consecutive years, the number of discharges before the expiration of that term not in any year to exceed five per cent. of the total effectives. Officers remaining in the service must agree to serve to the age of 45 years and newly appointed officers must agree to serve actively for 25 years.

No military schools except those absolutely indispensable for the units allowed shall exist in Germany two months after the Peace. No associations such as societies of discharged soldiers, shooting or touring clubs, educational establishments or universities may occupy themselves with military matters. All measures of mobilization are forbidden.

Fortresses

All fortified works, fortresses, and field works situated in German territory within a zone 50 kilometres east of the Rhine will be dismantled within three months. The construction of any new fortifications there is forbidden. The fortified works on the southern and eastern frontiers, however, may remain.

Control

Inter-Allied Commissions of Control will see to the execution of the provisions for which a time limit is set, the maximum named being three months. They may establish headquarters at the German seat of government and go to any part of Germany desired. Germany must give them complete facilities, pay their expenses, and also the expenses of execution of the Treaty, including the labor and material necessary in demolition, destruction or surrender of war equipment.

Naval

The German Navy must be demobilized within a period of two months after the Peace.

She will be allowed six small battleships, six light cruisers, 12 destroyers, 12 torpedo boats, and no submarines, either military or commercial, with a personnel of 15,000 men, including officers, and no reserve force of any character. Conscription is abolished, only voluntary service being permitted, with a minimum period of 25 years service for officers and 12 for men. No member of the German mercantile marine will be permitted any naval training.

All German vessels of war in foreign ports, and the German High Seas Fleet interned at Scapa Flow, will be surrendered, the final disposition of these ships to be decided upon by the Allied and Associated Powers. Germany must surrender 42 modern destroyers, 50 modern torpedo-boats, and all submarines, with their salvage vessels. All war vessels under construction, including submarines, must be broken up. War vessels not otherwise provided for, are to be placed in reserve or used for commercial purposes. Replacement of ships except those lost can take place only at the end of 20 years for battleships and 15 years for destroyers. The largest armored ship Germany will be permitted will be 10,000 tons.

Germany is required to sweep up the

II. INTERNATIONAL RELATIONS

mines in the North Sea and the Baltic Sea as decided upon by the Allies. All German fortifications in the Baltic defending the passages through the Belts must be demolished. Other coast defenses are permitted, but the number and calibre of the guns must not be increased.

During a period of three months after the Peace, German high-power wireless stations at Nauen, Hanover, and Berlin will not be permitted to send any messages except for commercial purposes and under supervision of the Allied and Associated Governments, nor may any more be constructed.

Germany will be allowed to repair German submarine cables which have been cut but are not being utilized by the Allied Powers, and also portions of cables which, after having been cut, have been removed, or are at any rate not being utilized by any one of the Allied and Associated Powers. In such cases the cables, or portions of cables, removed or utilized remain the property of the Allied and Associated Powers, and accordingly 14 cables or parts of cables are specified which will not be restored to Germany.

Air

The armed forces of Germany must not include any military or naval air forces except for not over 100 unarmed seaplanes to be retained till Oct. 1 to search for submarine mines. No dirigibles shall be kept. The entire air personnel is to be demobilized within two months, except for 1,000 officers and men retained till October. No aviation grounds or dirigible sheds are to be allowed within 150 kilometres of the Rhine or the eastern or southern frontiers, existing installations within these limits to be destroyed. The manufacture of aircraft and parts of aircraft is forbidden for six months. All military and naval aeronautical material under a most exhaustive definition must be surrendered within three months, except for the hundred seaplanes already specified.

SECTION VI. PRISONERS OF WAR

The repatriation of German prisoners and interned civilians is to be carried out without delay and at Germany's expense by a commission composed of representatives of the Allies and Germany. Those under sentence for offences against discipline are to be repatriated without regard to the completion of their sentence. Until Germany has surrendered persons guilty of offences against the laws and customs of War, the Allies have the right to retain selected German officers. The Allies may deal at their own discretion with German nationals who do not desire to be repatriated, all repatriation being conditional on the immediate release of any Allied subjects still in Germany. Germany is to accord facilities to commissions of enquiry in collecting information in regard to missing prisoners of war and in imposing penalties on German officials who have concealed Allied nationals. Germany is to restore all property belonging to Allied prisoners. There

is to be reciprocal exchange of information as to dead prisoners and their graves.

Graves

Both parties will respect and maintain the graves of soldiers and sailors buried on their territories, agree to recognize and assist any commission charged by any Allied or Associated Government with identifying, registering, maintaining or erecting suitable monuments over the graves, and to afford to each other all facilities for the repatriation of the remains of their soldiers.

SECTION VII. RESPONSIBILITIES

"The Allied and Associated Powers publicly arraign William II of Hohenzollern, formerly German Emperor, for a supreme offence against international morality and the sanctity of treaties."

The ex-Emperor's surrender is to be requested of Holland and a special tribunal set up composed of one judge from each of the five Great Powers, with full guarantees of the right of defense. It is to be guided "by the highest motives of international policy with a view of vindicating the solemn obligations of international undertakings and the validity of international morality," and will fix the punishment it feels should be imposed.

Persons accused of having committed acts in violation of the laws and customs of war are to be tried and punished by military tribunals under military law. If the charges affect nationals of only one state, they will be tried before a tribunal of that state; if they affect nationals of several states, they will be tried before joint tribunals of the states concerned. Germany shall hand over to the Associated Governments either jointly or severally all persons so accused and all documents and information necessary to ensure full knowledge of the incriminating acts, the discovery of the offenders, and the just appreciation of the responsibility. The accused will be entitled to name his own counsel.

SECTION VIII. REPARATION

"The Allied and Associated Governments affirm, and Germany accepts the responsibility of herself and her allies for causing all the loss and damage to which the Allied and Associated Governments and their nationals have been subjected as a consequence of the war imposed upon them by the aggression of Germany and her allies."

The total obligation of Germany to pay, as defined in the category of damages, is to be determined and notified to her after a fair hearing and not later than May 1, 1921, by an Inter-Allied Reparation Commission. At the same time a schedule of payments to discharge the obligation within 30 years shall be presented. These payments are subject to postponement in certain contingencies. Germany irrevocably recognizes the full authority of this Commission, agrees to supply it with all the necessary information and to pass legislation to effectuate its findings. She further agrees to restore to

II. INTERNATIONAL RELATIONS

the Allies cash and certain articles which can be identified.

As an immediate step towards restoration, Germany shall pay within two years 20,000,000,000 marks in either gold, goods, ships, or other specific forms of payment, with the understanding that certain expenses, such as those of the Armies of Occupation and payments for food and raw materials, may be deducted at the discretion of the Allies.

Germany further binds herself to repay all sums borrowed by Belgium from the Allies as a result of Germany's violation of the treaty of 1839 up Nov. 11, 1918, and for this purpose will issue at once and hand over to the Reparation Commission five per cent. gold bonds falling due in 1926.

While the Allied and Associated Governments recognize that the resources of Germany are not adequate after taking into account permanent diminution of such resources resulting from the Treaty, they require, and Germany undertakes that she will make, compensation for all damages caused to civilians under seven main categories:

(a) Damages by personal injury to civilians caused by acts of war, directly or indirectly.

(b) Damages caused to civilians, including exposure to the sea, resulting from acts of cruelty ordered by the enemy, and to civilians in the occupied territories.

(c) Damages caused by maltreatment of prisoners.

(d) Damages to the Allied peoples represented by pensions and separation allowances, capitalized at the signature of this Treaty.

(e) Damages to property other than naval or military materials.

(f) Damage to civilians by being forced to labor.

(g) Damages in the form of levies of fines imposed by the enemy.

"In periodically estimating Germany's capacity to pay, the Reparation Commission shall examine the German system of taxation, first to the end that the sums for reparation which Germany is required to pay shall become a charge upon all her revenues, prior to that for the service or discharge of any domestic loan and secondary so as to satisfy itself that, in general, the German scheme of taxation is fully as heavy proportionately as that of any of the Powers represented on the Commission."

"The measures which the Allied and Associated Powers shall have the right to take, in case of voluntary default by Germany, and which Germany agrees not to regard as acts of war, may include economic and financial prohibitions and reprisals and in general such other measures as the respective Governments may determine to be necessary in the circumstances."

The Commission shall consist of one representative each of the United States, Great Britain, France, Italy, and Belgium, and in certain cases of Japan and Serbia, with all other Allied Powers entitled, when their claims are under consideration, to the right of representation

without voting power. It shall permit Germany to give evidence regarding her capacity to pay and shall assure her a just opportunity to be heard. It shall make its headquarters at Paris; establish its own procedure and personnel, have general control of the whole reparation problem; and become the exclusive agency of the Allies for receiving, holding, selling and distributing reparation payments. Majority vote shall prevail except that unanimity is required on questions involving the sovereignty of any of the Allies, the cancellation of all or part of Germany's obligations, the time and manner of selling, distributing and negotiating bonds issued by Germany, any postponement between 1921 and 1926 of annual payments beyond 1930 and any postponement after 1926 for a period of more than three years, the application of a different method of measuring damage than in a similar former case, and the interpretation of provisions. Withdrawal from representation is permitted on 12 months' notice.

The Commission may require Germany to give from time to time, by way of guaranty, issues of bonds or other obligations to cover such claims as are not otherwise satisfied. In this connection and on account of the total amount of claims, bond issues are presently to be required of Germany in acknowledgment of its debt as follows: 20,000,000,000 marks gold, payable not later than May 1, 1921, without interest; 40,000,000,000 marks gold bearing $2\frac{1}{2}$ per cent. interest between 1921 and 1926 and thereafter five per cent., with a one per cent. sinking-fund payment beginning in 1926; and an undertaking to deliver 40,000,000,000 marks gold bonds bearing interest at five per cent., under terms to be fixed by the Commission.

Interest on Germany's debt will be five per cent. unless otherwise determined by the Commission in the future, and payments that are not made in gold may "be accepted by the Commission in the form of properties, commodities, businesses, rights concessions, etc." Certificates of beneficial interest representing either bonds or goods delivered by Germany may be issued by the Commission to the interested power, no power being entitled, however, to have its certificates divided into more than five pieces. As bonds are distributed and pass from the control of the Commission, an amount of Germany's debt equivalent to their par value is to be considered as liquidated.

Shipping

The German Government recognizes the right of the Allies to the replacement, ton for ton and class for class, of all merchant ships and fishing boats lost or damaged owing to the war, and agrees to cede to the Allies all German merchant ships of 1,600 tons gross and upwards; one-half of her ships between 1,600 and 1,000 tons gross and one-quarter of her steam trawlers and other fishing boats. These ships are to be delivered within two months to the Reparation Commission, together with documents of title

II. INTERNATIONAL RELATIONS

evidencing the transfer of the ships free from encumbrance.

"As an additional part of reparation," the German Government further agrees to build merchant ships for the account of the Allies to the amount of not exceeding 200,000 tons gross annually during the next five years.

All ships used for inland navigation taken by Germany from the Allies are to be restored within two months, the amount of loss not covered by such restitution to be made up by the cession of the German river fleet up to 20 per cent. thereof.

In order to effect payment of deliveries in kind, Germany is required, for a limited number of years, varying in the case of each commodity, to deliver coal, coal-tar products, dyestuff and chemical drugs, in specific amounts to the reparation Commission. The Commission may so modify the conditions of delivery, as not to interfere unduly with Germany's industrial requirements. The deliveries of coal are based largely upon the principle of making good diminutions in the production of the Allied countries resulting from the war.

Devastated Areas

Germany undertakes to devote her economic resources directly to the physical restoration of the invaded areas. The Reparation Commission is authorized to require Germany to replace the destroyed articles by the delivery of animals, machinery, etc., existing in Germany, and to manufacture materials required for reconstruction purposes; all with due consideration for Germany's essential domestic requirements.

As reparation for the destruction of the library of Louvain Germany is to hand over manuscripts, early printed books, prints, etc., to the equivalent of those destroyed.

In addition to the above, Germany is to hand over to Belgium wings now at Berlin belonging to the altarpiece of the Adoration of the Lamb by Hubert and Jan van Eyck, the center of which is now in the church of Saint Bavo at Ghent, and the wings, now at Berlin and Munich, of the altarpiece of the Last Supper by Dirk Bouts, the center of which belongs to the Church of Saint Peter at Louvain.

Germany is to restore within six months the Koran of the Caliph Othman, formerly at Medina, to the King of the Hedjaz, and the skull of the Sultan Mkwawa, formerly in German East Africa, to His Britannic Majesty's Government.

The German Government is also to restore to the French Government certain papers taken by the German authorities in 1870, belonging then to M. Rouher, and to restore the French flags taken during the war of 1870-71.

Coal, etc.

Germany is to deliver annually for 10 years to France coal equivalent, to the difference between annual pre-war output of Nord and Pas de Calais mines and annual production during the above 10 years. Germany further gives options over 10 years for delivery of 7,000,000

tons of coal per year to France in addition to the above 8,000,000 tons of Belgium and of an amount rising from 4,500,000 tons in 1919 to 1920 to 8,500,000 tons in 1923 to 1924 to Italy at prices to be fixed as prescribed in the Treaty. Coke may be taken in place of coal in ratio of three tons to four. Provision is also made for delivery to France over three years of benzol coal tar and sulphate of ammonia. The Commission has powers to postpone or annul the above deliveries should they interfere unduly with industrial requirements of Germany.

Dyestuffs and Chemical Drugs

Germany accords option to the Commission on dyestuffs and chemical drugs including quinine up to 50 per cent. of total stock in Germany at the time the Treaty comes into force and similar option during each six months to end of 1924 up to 25 per cent. of previous six months' output.

Cables

Germany renounces all title to specified cables, value of such as were privately owned being credited to her against reparation indebtedness.

SECTION IX. FINANCE

Powers to which German territory is ceded will assume a certain portion of the German pre-war debt, the amount to be fixed by the Reparation Commission on the basis of the ratio between the revenues of the ceded territory and Germany's total revenues for the three years preceding the war. In view, however, of the special circumstances under which Alsace-Lorraine was separated from France in 1871, when Germany refused to accept any part of the French public debt, France will not assume any part of Germany's pre-war debt there, nor will Poland share in certain German debts incurred for the oppression of Poland. If the value of the German public property in ceded territory exceeds the amount of debt assumed, the States to which property is ceded give credit on reparation for the excess, with the exception of Alsace-Lorraine. Mandatory powers will not assume any German debts or give any credit for German Government property. Germany renounces all right of representation on, or control of, State banks, commissions, or other similar international financial and economic organizations.

Germany is required to pay the total cost of the Armies of Occupation from the date of the armistice as long as they are maintained in German territory, this cost to be a first charge on her resources. The cost of reparation is the next charge, after making such provisions for payments for imports as the Allies may deem necessary.

Germany is to deliver to the Allied and Associated Powers all sums deposited in Germany by Turkey and Austria-Hungary in connection with the financial support extended by her to them during the war, and to transfer to the Allies all claims against Austria-Hungary, Bul-

garia, or Turkey in connection with agreements made during the war. Germany confirms the renunciation of the Treaties of Bucharest and Brest-Litovsk.

On the request of the Reparation Commission, Germany will expropriate any rights or interests of her nationals in public utilities in ceded territories or those administered by mandatories, and in Turkey, China, Russia, Austria-Hungary, and Bulgaria, and transfer them to the Reparation Commission, which will credit her with their value. Germany guarantees to repay to Brazil the fund arising from the sale of Sao Paulo coffee which she refused to allow Brazil to withdraw from Germany.

SECTION X. ECONOMIC CLAUSES

Customs

For a period of six months, Germany shall impose no tariff duties higher than the lowest in force in 1914, and for certain agricultural products, wines, vegetable oils, artificial silk, and washed or scoured wool, this restriction obtains for two and a half years more. For five years, unless further extended by the League of Nations, Germany must give most-favored-nation treatment to the Allied and Associated Powers. She shall impose no customs tariff for five years on goods originating in Alsace-Lorraine and for three years on goods originating in former German territory ceded to Poland, with the right of reservation of a similar exception for Luxembourg.

Shipping

Ships of the Allied and Associated Powers shall for five years and thereafter under condition of reciprocity, unless the League of Nations otherwise decides, enjoy the same rights in German ports as German vessels and have most-favored-nation treatment in fishing, coasting trade and towage, even in territorial waters. Ships of a country having no seacoast may be registered at some one place within its territory.

Unfair Competition

Germany undertakes to give the trade of the Allied and Associated Powers adequate safeguards against unfair competition, and in particular to suppress the use of false wrappings and markings and on condition of reciprocity to respect the laws and judicial decisions of Allied and Associated States in respect of regional appellations of wines and spirits.

Treatment of Nationals

Germany shall impose no exceptional taxes or restrictions upon the nationals of Allied and Associated States for a period of five years, and unless the League of Nations acts for an additional five years. German nationality shall not continue to attach to a person who has become a national of an Allied or Associated State.

Multilateral Conventions

Some 40 multilateral conventions are renewed between Germany and the Allied and Associated Powers but special condi-

tions are attached to Germany's readmission to several. As to postal and telegraphic conventions, Germany must not refuse to make reciprocal agreements with the new States. She must agree as respects the radio-telegraphic convention to provisional rules to be communicated to her and adhere to the new convention when formulated; in the North Sea Fisheries and North Sea Liquor Traffic Conventions, rights of inspection and police over Associated fishing boats shall be exercised for at least five years only by vessels of these powers; as to the International Railway Union, she shall adhere to the new convention when formulated. China as to the Chinese Customs Tariff Arrangement, the Arrangement of 1905 regarding Whang-Poo, and the Boxer Indemnity of 1901; France, Portugal, and Rumania as to the Hague Convention of 1903 relating to Civil Procedure; and Great Britain and the United States as to Article 3 of the Samoan Treaty of 1899, are relieved of all obligation towards Germany.

Bilateral Treaties

Each Allied and Associated State may renew any treaty with Germany in so far as consistent with the Peace Treaty by giving notice within six months. Treaties entered into by Germany since Aug. 1, 1914, with other enemy States and before or since that date with Rumania, Russia, and Governments representing parts of Russia are abrogated, and concessions granted under pressure by Russia to German subjects annulled. The Allied and Associated States are to enjoy most-favored-nation treatment under treaties entered into by Germany and other enemy states before Aug. 1, 1914, and under treaties entered into by Germany and neutral states during the war.

Pre-War Debts

A system of clearing houses is to be created within three months, one in Germany and one in each Allied and Associated State, which adopts the plan, for the payment of pre-war debts, including those arising from contracts suspended by the war; for the adjustment of the proceeds of the liquidation of enemy property, and the settlement of other obligations. Each participating State assumes responsibility for the payment of all debts owing by its nationals to nationals of the enemy States except in cases of pre-war insolvency of the debtor. The proceeds of the sale of private enemy property in each participating State may be used to pay the debts owed to the nationals of that State, direct payment from debtor to creditor, and all communications relating thereto being prohibited. Disputes may be settled by arbitration, by the courts of the debtor country, or by the Mixed Arbitral Tribunal. Any Allied or Associated Power may, however, decline to participate in this system by giving Germany six months' notice.

Enemy Property

Germany shall restore or pay for all private enemy property seized or damaged by her, the amount of damages to be

fixed by the Mixed Arbitral Tribunal. The Allied and Associated States may liquidate German private property within their territories as compensation for property of their nationals not restored or paid for by Germany, for debts owed to their nationals by German nationals and for other claims against Germany. Germany is to compensate its nationals for such losses, and to deliver within six months all documents relating to property held by its nationals in Allied and Associated States. All war legislation as to enemy property, rights, and interests is confirmed and all claims by Germany against the Allied or Associated Governments for acts under exceptional war measures abandoned.

Contracts

Pre-war contracts between Allied and Associated nationals, excepting the United States, Japan, and Brazil, and German nationals are cancelled except for debts for acts already performed, agreements for the transfer of property where the property had already passed, leases of land and houses, contracts of mortgage, pledge or lien, mining concessions, contracts with Governments and insurance contracts. Mixed Arbitral Tribunals shall be established of three members, one chosen by Germany, one by the Associated State and the third by agreement, or failing which by the present President of Switzerland. They shall have jurisdiction over all disputes as to contracts concluded before the present Peace Treaty.

Fire-insurance contracts are not considered dissolved by the war, even if premiums have not been paid, but lapse at the date of the first annual premium falling due three months after the Peace. Life-insurance contracts may be restored by payments of accumulated premiums with interest, sums falling due on such contracts during the war to be recoverable with interest. Marine-insurance contracts are dissolved by the outbreak of war, except where the risk insured against had already been incurred. Where the risk had not attached, premiums paid are recoverable; otherwise premiums due and sums due on losses are recoverable. Re-insurance treaties are abrogated unless invasion has made it impossible for the reinsured to find another reinsurer. Any Allied or Associated Power, however, may cancel all the contracts running between its nationals and a German life-insurance company, the latter being obligated to hand over the proportion of its assets attributable to such policies.

Industrial Property

Property rights as to industrial, literary, and artistic property are reestablished, the special war measures of the Allied and Associated Powers are ratified; and the right reserved to impose conditions on the use of German patents and copyrights when in the public interest. Except as between the United States and Germany, pre-war licenses and rights to sue for infringements committed during the war are cancelled.

Opium

The contracting Powers agree, whether or not they have signed and ratified the Opium Convention of Jan. 23, 1912, or signed the special protocol opened at the Hague in accordance with resolutions adopted by the Third Opium Conference in 1914, to bring the said convention into force by enacting within 12 months of the Peace the necessary legislation.

Religious Missions

The Allied and Associated Powers agree that the properties of religious missions in territories belonging or ceded to them shall continue in their work under the control of the Powers, Germany renouncing all claims in their behalf.

SECTION XI. AERIAL NAVIGATION

Aircraft of the Allied and Associated Powers shall have full liberty of passage and landing over and in German territory, equal treatment with German planes as to use of German airdromes, and with most-favored-nation planes as to internal commercial traffic in Germany. Germany agrees to accept Allied certificates of nationality, airworthiness, or competency and licenses and to apply the convention relative to aerial navigation concluded between the Allies and Associated Powers to her own aircraft over her own territory. These conditions apply until 1923 unless Germany has since been admitted to the League of Nations or to the above convention.

SECTION XII. FREEDOM OF TRANSIT

Germany must grant freedom of transit through her territories by rail or water to persons, goods, ships, carriages, and mails from or to any of the Allied or Associated Powers, without customs or transit duties, undue delays, restrictions, or discriminations based on nationality, means of transport, or place of entry or departure. Goods in transit shall be assured all possible speed of journey, especially perishable goods. Germany may not divert traffic from its normal course in favor of her own transport routes or maintain "control stations" in connection with transmigration traffic. She may not establish any taxes discriminating against the ports of Allied or Associated Powers; must grant the latter's seaports all favors and reduced tariffs granted her own or other nationals, and afford the Allied and Associated Powers equal rights with those of her own nationals in her ports and waterways, save that she is free to open or close her maritime coasting trade.

Free Zones in Ports

Free zones existing in German ports on Aug. 1, 1914, must be maintained with due facilities as to warehouses, packing and unpacking, without discrimination, and without charges except for expenses of administration and use. Goods leaving the free zones for consumption in Germany and goods brought into the free zones from Germany shall be subject to the ordinary import and export taxes.

The Elbe from the junction of the Vltava, the Vltava from Prague, the Oder

II. INTERNATIONAL RELATIONS

from Oppa, the Nieman from Grodno, and the Danube from Ulm are declared international, together with their connections. The riparian states must ensure good conditions of navigation within their territories unless a special organization exists therefor. Otherwise appeal may be had to a special tribunal of the League of Nations, which also may arrange for a general international waterways convention.

International Rivers

The Elbe and the Oder are to be placed under international Commissions to meet within three months, that for the Elbe composed of four representatives of Germany, two from Czecho-Slovakia, and one each from Great Britain, France, Italy, and Belgium; and that for the Oder composed of one each from Poland, Prussia, Czecho-Slovakia, Great Britain, France, Denmark, and Sweden. If any riparian state on the Nieman should so request of the League of Nations, a similar Commission shall be established there. These Commissions shall upon request of any riparian state meet within three months to revise existing international agreements.

The Danube

The European Danube Commission re-assumes its pre-war powers, but for the time being with representatives of only Great Britain, France, Italy, and Rumania. The Upper Danube is to be administered by a new international Commission until a definitive statute be drawn up at a conference of the Powers nominated by the Allied and Associated Governments within one year after the Peace. The enemy Governments shall make full reparations for all war damages caused to the European Commission; shall cede their river facilities in surrendered territory, and give Czecho-Slovakia, Serbia, and Rumania any rights necessary on their shores for carrying out improvements in navigation.

The Rhine and the Moselle

The Rhine is placed under the Central Rhine Commission to meet at Strassbourg within six months after the Peace and to be composed of four representatives of France, which shall in addition select the President, four of Germany, and two each of Great Britain, Italy, Belgium, Switzerland, and the Netherlands. Germany must give France on the course of the Rhine included between the two extreme points of her frontiers all rights to take water to feed canals, while herself agreeing not to make canals on the right bank opposite France. She must also hand over to France all her drafts and designs for this part of the river. Belgium is to be permitted to build a deep draft Rhine-Meuse canal if she so desires within 25 years, in which case Germany must construct the part within her territory on plans drawn by Belgium. Similarly the interested Allied Governments may construct a Rhine-Danube Canal, both, if constructed, to come under the competent international commission. Germany may not object if the Central Rhine Commission desires to extend its jurisdiction over

the Lower Moselle, the Upper Rhine, or lateral canals.

Germany must cede to the Allied and Associated Governments certain tugs, vessels, and facilities for navigation on all these rivers, the specific details to be established by an arbiter named by the United States. Decision will be based on the legitimate needs of the parties concerned and on the shipping traffic during the five years before the war. The value will be included in the regular reparation account. In the case of the Rhine shares in the German navigation companies and property such as wharves and warehouses held by Germany in Rotterdam at the outbreak of the war must be handed over.

Railways

Germany in addition to most-favored-nation treatment on her railways, agrees to cooperate in the establishment of through ticket services for passengers and baggage; to ensure communication by rail between the Allied, Associated and other States; to allow the construction or improvement within 25 years of such lines as necessary; and to conform her rolling stock to enable its incorporation in trains of the Allied or Associated Powers. She also agrees to accept the denunciation of the St. Gothard Convention if Switzerland and Italy so request, and temporarily to execute instructions as to the transport of troops and supplies and the establishment of postal and telegraphic service, as provided.

Czecho-Slovakia

To assure Czecho-Slovakia access to the sea, special rights are given her both north and south. Towards the Adriatic, she is permitted to run her own through trains to Fiume and Trieste. To the north, Germany is to lease her for 99 years spaces in Hamburg and Stettin, the details to be worked out by a commission of three representing Czecho-Slovakia, Germany, and Great Britain.

The Kiel Canal

The Kiel Canal is to remain free and open to war and merchant ships of all nations at peace with Germany. Subjects, goods and ships of all States are to be treated on terms of absolute equality, and no taxes to be imposed beyond those necessary for upkeep and improvement for which Germany is to be responsible. In case of violation or of disagreement as to these provisions, any State may appeal to the League of Nations, and may demand the appointment of an international commission. For preliminary hearing of complaints Germany shall establish a local authority at Kiel.

SECTION XIII. INTERNATIONAL LABOR ORGANIZATION

Members of the League of Nations agree to establish a permanent organization to promote international adjustment of labor conditions, to consist of an annual International Labor Conference and an International Labor Office.

The former is composed of four representatives of each state, two from the Government and one each from the employers

II. INTERNATIONAL RELATIONS

and the employed; each of them may vote individually. It will be a deliberative legislation body, its measures taking the form of draft conventions or recommendations for legislation, which, if passed by two-thirds vote, must be submitted to the law-making authority in every State participating. Each Government may either enact the terms into law; approve the principle, but modify them to local needs; leave the actual legislation in case of a federal state to local legislatures; or reject the convention altogether without further obligation.

The International Labor Office is established at the seat of the League of Nations as part of its organization. It is to collect and distribute information on labor throughout the world and prepare agenda for the Conference. It will publish a periodical in French and English, and possibly in other languages. Each state agrees to make it for presentation to the Conference an annual report of measures taken to execute accepted conventions. The governing body is its executive. It consists of 24 members, 12 representing the Governments, six the employers and six the employees, to serve for three years.

On complaint that any Government has failed to carry out a convention to which it is a party, the governing body may make inquiries directly to that Government and in case the reply is unsatisfactory, may publish the complaint with comment. A complaint by one Government against another may be referred by the governing body to a commission of inquiry nominated by the Secretary-General of the League. If the Commission's report fails to bring satisfactory action, the matter may be taken to a permanent Court of International Justice for final decision. The chief reliance for securing enforcement of the law will be publicity, with a possibility of economic action in the background.

The first meeting of the Conference will take place in October, 1919, at Washington, to discuss the eight-hour day or 48-hour week; prevention of unemployment; extension and application of the International Conventions adopted at Berne in 1906 prohibiting night work for women and the use of white phosphorous in the manufacture of matches; and employment of women and children at night or in unhealthy work, of women before and after childbirth, including maternity benefit, and of children as regards minimum age. [See also XV, *Labor*.]

Labor Clauses

Nine principles of labor conditions are recognized on the ground that "the well-being, physical and moral of the industrial wage earners is of supreme international importance." With exceptions necessitated by differences of climate, habits and economic development, they include: the guiding principle that labor should not be regarded merely as a commodity or article of commerce; right of association of employers and employees; a wage adequate to maintain a reasonable standard of life; the eight-hour day or 48-hour week; a weekly rest of at least 24 hours, which should include Sunday wherever practi-

cable; abolition of child labor and assurance of the continuation of the education and proper physical development of children; equal pay for equal work as between men and women; equitable treatment of all workers, including foreigners; and a system of inspection in which women should take part.

SECTION XIV. GUARANTEES

Western Europe

As a guarantee for the execution of the Treaty, German territory to the west of the Rhine, together with the bridgeheads, will be occupied by Allied and Associated troops for 15 years. If the conditions are faithfully carried out by Germany, certain districts, including the bridgehead of Cologne, will be evacuated at the expiration of five years; certain other districts, including the bridgehead of Coblenz, and the territories nearest the Belgian frontier, will be evacuated after 10 years, and the remainder, including the bridgehead of Mainz, will be evacuated after 15 years. In case the Inter-Allied Reparation Commission finds that Germany has failed to observe the whole or part of her obligations, either during the occupation or after the 15 years have expired, the whole or part of the areas specified will be reoccupied immediately. If before the expiration of the 15 years Germany complies with all the Treaty undertakings, the occupying forces will be withdrawn immediately.

Eastern Europe

All German troops at present in territories to the east of the new frontier shall return as soon as the Allied and Associated Governments deem wise. They are to abstain from all requisitions and are in no way to interfere with measures for national defense taken by the Governments concerned.

All questions regarding occupation not provided for by the Treaty will be regulated by a subsequent convention or conventions which will have similar force and effect.

SECTION XV. MISCELLANEOUS

Germany agrees to recognize the full validity of the Treaties of Peace and additional conventions to be concluded by the Allied and Associated Powers with the Powers allied with Germany, to agree to the decisions to be taken as to the territories of Austria-Hungary, Bulgaria and Turkey and to recognize the new States in the frontiers to be fixed for them.

Germany agrees not to put forward any pecuniary claims against any Allied or Associated Power signing the present Treaty based on events previous to the coming into force of the Treaty.

Germany accepts all decrees as to German ships and goods made by any Allied or Associated Prize Court. The Allies reserve the right to examine all decisions of German Prize Courts.

The present Treaty, of which the French and English texts are both authentic, shall be ratified and the dispositions of ratification made in Paris as soon as possible.

The Treaty is to become effective for the Powers which have ratified when it shall have been ratified by Germany and three of the Principal Allied and Associated Powers.

Ratification of the Treaty.—According to the Treaty, its provisions were to come into force from the date of a *procès-verbal* to be deposited at Paris. The *procès-verbal* was to be prepared after Germany and three of the principal Allied and Associated Powers had deposited their ratifications of the Treaty. On Nov. 1 the Peace Conference sent a note to the German Government calling its attention not only to the fact that three of the principal Allies, Great Britain, France, and Italy, had ratified the Treaty, as had also Germany, and that the *procès-verbal* was ready for drafting, but also that the Peace Treaty would not be put into force until Germany fulfilled her obligations under the various armistice conventions, some of the provisions of which were not fully satisfied or carried out. Germany was then further notified that she must also sign a protocol simultaneously with the signing of the *procès-verbal* covering reparation for the sinking of the German fleet at Scapa Flow on June 21. The German Government was invited to send her duly qualified representatives for these purposes so as to accomplish them by Nov. 10.

The armistice of Nov. 11, 1918, was revised and renewed on three later dates, Dec. 16, 1918, Jan. 16, 1919, and Feb. 16, 1919; by the agreement of Feb. 16 the armistice was further prolonged without specified date of expiry, the Allied powers reserving the right to terminate it at three days' notice. The protocol set forth the various armistice conventions which had not been fully executed by Germany:

(1) The armistice of Nov. 11, 1918, Clause 7, under which 5,000 locomotives and 150,000 cars were to be delivered; there were still to be delivered 42 locomotives and 4,460 cars.

(2) The same armistice, Clause 12, requiring the withdrawal of German troops from Russian territory, which had not been done in spite of injunctions of Aug. 27, Sept. 27, and Oct. 10, 1919, of the Peace Conference (see also III, *The European War*).

(3) Clause 14 of the same armistice, obligating the discontinuance immediately of

all requisition seizures or coercive measures in Russian territory.

(4) Clause 19, obligating the immediate delivery of all documents, specie, values of property and finance, with all issuing apparatus, concerning public or private interests in the invaded countries; the complete statements of the specie and securities removed, collected or confiscated by the Germans in the invaded countries were still to be delivered.

(5) Clause 22 of the same convention, requiring the delivery of all German submarines, which was violated by the destruction of the U. C. 48 off Ferrol, by order of her German commander, and the destruction in the North Sea of certain submarines proceeding to Great Britain for delivery.

(6) Clause 31, obligating the German Government not to destroy its battleships before delivery, which was violated on June 21, 1919, by the destruction at Scapa Flow of the German fleet.

(7) Protocol of Dec. 17, 1918, annexed to the armistice convention of Dec. 13, 1918, requiring the restoration of all works of art and artistic documents removed from France and Belgium.

(8) Clause 3, of the armistice convention of Jan. 15, 1919, and Clause 3 of the protocol of July 25, 1919, as to delivery of agricultural implements, which were not fully satisfied.

(9) Failure to restore all the industrial material removed from French and Belgian territories, under Clause 6, of the armistice convention of Jan. 16, 1919.

(10) Clause 8, of the convention of Jan. 16, 1919, stipulating the placing of the entire German merchant fleet at the disposal of the Allied and Associated Powers; a certain number of ships was still to be delivered, although requests for such delivery had been made.

(11) Protocols of the Brussels Conference of March 13 and 14, 1919, forbidding the exportation of war material of any nature; these were violated by the exportation of aerial material to Sweden, Holland and Denmark.

(12) The question of the evacuation of the Baltic provinces, which was the subject of an exchange of notes and decisions. Under the protocol Germany agrees to comply with the Allied decisions "loyally and strictly."

The protocol thereupon imposed new conditions upon Germany, the fulfillment of which was imperative and a *sine qua non* for peace. Should Germany fail to comply with any of the obligations specified, "the Allied and Associated Powers reserve the right to have recourse to any coercive measures which they may deem appropriate." The conditions imposed were as follows:

First, to deliver as reparation for the destruction of the German fleet at Scapa Flow:

(a) Within a period of 60 days from the signing of the present protocol and under the conditions provided for by Para-

II. INTERNATIONAL RELATIONS

graph 2 of Article 185 of the Treaty of Peace, the following five light cruisers: *Königsberg, Pillau, Graudenz, Regenberg, Strassburg.*

(b) Within a period of 90 days from the signing of the present protocol and in all respects in good condition and ready to function, such a number of floating docks, floating cranes, tugs and dredges equivalent to a total displacement of 400,000 tons as the principal Allied and Associated Powers may demand. As regards the docks the lifting power will be considered as displacement. In the number of docks above provided for there should be about 75 per cent. of docks of over 10,000 tons.

(c) To be delivered within a period of ten days from the signing of the present protocol: A complete list of all the floating docks, floating cranes, tugs and dredges which are German property. List which will be delivered to the Inter-Allied Naval Control Commission provided for by Article 209 of the Peace Treaty will include the material which on Nov. 11, 1918, belonged to the German Government or in which the German Government had an important interest at that date.

(d) The officers and men who formed the crews of the battleships sunk at Scapa Flow and who are actually detained by the principal Allied and Associated Powers, with the exception of those whose surrender is provided for by Article 228 of the Peace Treaty, will be repatriated at the latest when Germany will have completed the above Paragraphs *a* and *b*.

(e) The destroyer B-98 will be considered as one of the 42 destroyers the delivery of which is provided for by Article 185 of the Peace Treaty.

Second. To deliver within a period of ten days from the signing of the present protocol the machinery and engines of the submarines U-137, U-138, and U-150 to offset the destruction of the submarine UC-48 as well as the three engines of the submarine U-146, which is still to be delivered to offset the destruction of submarines in the North Sea.

Third. To pay to the Allied and Associated Governments the value of the exported aerial material according to the decision and estimation which will be made and notified by the Aerial Control Commission provided for by Article 210 of the Peace Treaty and before Jan. 1, 1920.

Baron Kurt von Lersner, head of the German delegation, notified the Peace Conference on Dec. 1 that Germany refused to sign the protocol. In an interview, he stated that he would sign the protocol,

when the question of Scapa Flow is eliminated and referred to The Hague, and when there are also eliminated the paragraph relating to the evacuation of Lithuania, which we consider already settled and final, and the paragraph which would permit the invasion of our country by armed forces in times of peace on any trivial pretext.

He also insisted upon certain modifica-

tions of the provisions regulating the return of German war prisoners.

The reply of the Peace Conference was given on Dec. 8, in the form of two notes. The first note denied the German demands for modification of the Treaty on the surrender of Germans charged with crimes against international warfare and for the return of prisoners. It agreed, however, to consider the economic effects of the indemnities required in the unsigned protocol for the sinking of the warships in Scapa Flow "in a spirit of equity, after a hearing by the Reparation Commission." The note warned Germany "for the last time" that denunciation of the armistice would give the Allied armies all latitude for necessary military measures. The second note dealt entirely with the Scapa Flow incident. It placed the responsibility on the Germans for the sinking and interpreted the protest as "an attempt, difficult to explain, to delay the Treaty."

The German Government sent its reply to the Peace Conference on Dec. 12. It declared that Germany had not made and was not then making the final ratification dependent upon the clauses relating to war prisoners or the extradition of German subjects for trial, although it expressed hope that the Allies would be convinced that these issues had an important bearing upon the internal political situation in Germany. On the Scapa Flow issue the note expressed a willingness to yield, although it urged that reparation could not be made in the manner suggested in the demand for 400,000 tons of shipping. Germany proposed negotiation on this point between a board of German shipping experts and representatives of the Allies.

The Supreme Council decided on Dec. 27 to send an Allied Naval Commission to Hamburg and Danzig to review the Allied figures on the German dock facilities in those ports. The Allied experts presented figures showing that Germany possessed 700,000 tons of docks, dredges, and other maritime equipment. The demand of the Allies was for 400,000 tons as reparation for the sinking of the Scapa Flow fleet, leaving 300,000 tons for Germany's needs. The figures of the German experts showed her ton-

nage to be somewhat in excess of 500,000 tons and set forth Germany's need for 400,000 tons for her own shipping.

On Dec. 30 it was stated officially at Paris that Germany would sign the protocol and that the Treaty of Versailles would go into effect on Jan. 10, 1920. The Treaty went into effect on that day with the signing of the protocol by France, Great Britain, Italy, Japan, Belgium, Bolivia, Brazil, Guatemala, Peru, Poland, Siam, Czecho-Slovakia, Uruguay.

Austrian Independence and the German Constitution.—The adoption by Germany of a constitution containing an article which provided for the representation of Austria in the German Reichstag was the subject of an ultimatum by the Peace Conference, demanding its annulment. Article 80 of Section VI of the Peace Treaty bound the German Government to respect strictly the independence of Austria and to agree "that the independence shall be inalienable, except with the consent of the Council of the League of Nations." Nevertheless, that Government sought to evade this undertaking by a provision in the new German constitution (Article 61)

which granted Austria admission to the Reichstag, the effect of which was to assimilate her to the German lands (*Deutscher Lander*), clearly incompatible with Austrian independence. The article also provided for the admission of Austria in the German Council and regulated her participation therein, which in Paris was interpreted as the creation of a political bond between Berlin and Vienna, in contradiction of the Treaty. An Allied ultimatum was sent to Germany on Sept. 2, requiring the Government to declare Article 61 of its constitution null and void within 15 days, in default of which an order would be given for the immediate "extension of their occupation on the right bank of the Rhine." The German Government eventually gave assurances that it would annul the article in question, "notably the admission that Austrian representatives can take place only if, conformably with the Treaty, the League of Nations gives assent to a modification of Austria's international situation." On Sept. 22 the protocol annulling Article 61, as demanded by the Peace Conference, was signed at Versailles.

THE TREATY WITH AUSTRIA

Dismemberment of the Hapsburg Empire.—The signing of the Austrian Treaty on Sept. 10 by Dr. Karl Renner, Chancellor of the Austrian Republic, was the high point of the Peace Conference in the matter of territorial changes in Europe. The polyglot Empire, the nation composed of nations, known as Austria-Hungary was broken up into its component parts. Probably no nation in Europe has represented in it as many religions, races, peoples, and languages as the Hapsburg Monarchy. In dismembering the Empire the Peace Conference sought to be guided not only by considerations of race and language, but by economic reasons as well. Even as finally dismembered there remain minority linguistic and racial areas almost entirely submerged in the body politic of the states to which they were assigned. Almost every neighboring State extended its boundaries at the expense of the Empire, and territory not assigned to its neighbors was used

in creating new States. What remained were Austria and Hungary, destined to play rôles as small as their territory, small in comparison even with the new States brought into being by the Conference.

Territorial Changes.—Italy at last receives the Alps as her frontier. The ever present menace in the hands of her traditional enemy to dominate her northern plains is forever removed. The Duchy of Bukovina goes to Rumania, the boundaries of which are later to be traced. As for the new States, the following sections of the Treaty epitomize the situation:

Austria, in conformity with the action already taken by the Allied and Associated Powers, recognizes the complete independence of the Serb-Croat-Slovene State.

Austria renounces, so far as she is concerned, in favor of the Serb-Croat-Slovene State all rights and title over the territories of the former Austro-Hungarian Monarchy, situated outside of the frontiers of Austria, as laid down in Article 27 of Part II, and recognized by the pres-

II. INTERNATIONAL RELATIONS

ent Treaty, or by any treaties concluded for the purpose of completing the present settlement as forming part of the Serb-Croat-Slovene State.

The effect of this is to exclude Austria from the Adriatic.

Austria, in conformity with the action taken by the Allied and Associated Powers, recognizes the complete independence of the Czecho-Slovak State, which will include the autonomous territory of the Ruthenians to the south of the Carpathians.

Austria renounces, in so far as she is concerned, in favor of the Czecho-Slovak State all rights and title over the territories of the former Austro-Hungarian Monarchy situated outside the frontiers of Austria as laid down in Article 27 of Part II and recognized in accordance with the present Treaty as forming part of the Czecho-Slovak State.

As for the territorial changes on the Russian frontier, Austria acknowledges as permanent and inalienable the independence of all the territories that were part of the former Russian Empire on Aug. 1, 1914. Austria further undertakes to recognize all treaties which the Allied and Associated Powers will make "with States now existing or coming into existence in future in whole or part of the former Empire of Russia, as it existed on Aug. 1, 1914, and to recognize the frontiers of any such States as determined therein."

The exact delimitations of Austria's frontiers, arising either by the transfer of territory to old States or the creation of new States, is left to boundary commissions in each case. In the case of Italy, the commission is composed of five members, three of which are to be nominated by the principal Allied and Associated Powers, one by Italy and one by Austria. In the case of Czecho-Slovakia and Jugo-Slavia, the commissions are to be seven in number, five of which are to be nominated by the principal Allied and Associated Powers, one by Austria, and one by the other State. The commissions are to be constituted within 15 days from the coming into force of the treaty.

Protection of Minorities.—It is provided that Czecho-Slovakia, Jugo-Slavia, and Rumania, in consideration of the transfer of territory to them containing racial and linguistic minorities, undertake to protect the inter-

ests of inhabitants who differ from the majority of the population in race, language, or religion. As for Austria, she undertakes to assure full and complete protection of life and liberty to all inhabitants of Austria "without distinction of birth, nationality, language, race, or religion." It is also provided that the protection of racial, religious, or linguistic minorities is an obligation of international concern and placed under the guarantee of the League of Nations. Any member of the Council will have the right to bring to the attention of the Council any infraction of any, or all, of these guarantees.

Independence of Austria Inalienable.—A disability is laid upon Austria from ever uniting with Germany. The consent of the Council of the League of Nations alone can give sanction to such a merger. "Consequently Austria undertakes in the absence of the consent of the said Council to abstain from any act which might directly or indirectly or by any means whatever compromise her independence."

Reparation.—The reparation clauses read:

The Allied and Associated Governments affirm and Austria accepts the responsibility of Austria and her allies for causing the loss and damage to which the Allied and Associated Governments and their nationals have been subjected as a consequence of the war imposed upon them by the aggression of Austria-Hungary and her allies. (Article 177.)

The Allied and Associated Governments recognize that the resources of Austria are not adequate, after taking into account the permanent dimensions of such resources which will result from other provisions of the present Treaty, to make complete reparation for such loss and damage. (Article 178.)

The amount of the reparation to be paid is to be fixed by the Reparation Commission provided for in the Treaty with Germany, which is to have a section specially devoted to Austrian affairs. Austria will be notified not later than May 1, 1921, of the extent of her liabilities and of the schedule of payments on account thereof during a period of 30 years. Bearing in mind the resources and capacity of Austria as they appear after May 1, 1921, the Reparation Commission has discretion to amend the date and mod-

II. INTERNATIONAL RELATIONS

ify the form of the payments on account of reparation. But Austria must, as immediate reparation, pay during the years 1919, 1920, and the first four months of 1921, "a reasonable sum which shall be determined by the Commission." The Austrian section of the general Reparation Commission will include representatives of the United States, Great Britain, France, Italy, Greece, Poland, Rumania, Jugo-Slavia, and Czecho-Slovakia. Austria renounces all claims to vessels or cargoes sunk by naval action of the Allied and Associated Governments.

Financial Clauses.—The responsibility for the pre-war debt of the Austro-Hungarian Monarchy which was specifically secured on railways, salt mines, or other property is to be assumed in such proportion as the Reparation Commission shall determine by each of the States to which territory of the monarchy has been transferred or which have arisen from its dismemberment, including Austria. Similarly, the States to which Austro-Hungarian territory has been transferred or the States which have arisen from the dismemberment of the monarchy will assume the unsecured pre-war bond indebtedness of Austria-Hungary under the supervision of the Reparation Commission in the proportion that the revenues of the ceded territory for three years preceding the war bore to the revenues of the Empire. In making this calculation the revenues of Bosnia and Herzegovina are not to be included. The war debt held outside the Austro-Hungarian Empire shall be a charge on Austria alone.

States to which the Empire's territory have been transferred and States which have arisen from its dismemberment acquire all property and possessions within their new boundaries. Their value is to be fixed by the Reparation Commission and placed to the credit of Austria and to the debit of the State in question on account of the reparation due. Austria recognizes the right to the replacement ton for ton (gross tonnage) and class for class of all merchant ships and fishing boats lost or damaged in the war. Within two months of the coming into force of the Treaty, the Austrian Government will deliver to the Reparation

Commission all ships and fishing boats belonging to the nationals of the former Empire, it being recognized that Austrian tonnage in existence is less than that lost by the Allies.

As partial reparation Austria gives an option to the Allied and Associated Governments for five years on its timber and timber manufactures, iron and iron alloys, and magnesite in amounts as nearly proportionate to pre-war importations as her resources will bear.

Commercial Clauses.—Provision is made to ensure to Austria supplies of coal from Czecho-Slovakia and Poland in return for reciprocal obligations to supply certain raw materials. To that end there is a specific undertaking by the Czecho-Slovak State and by Poland that for a period of 15 years they will not impose "on the exportation to Austria of the products of coal mines in their territories any export duties or other charges or restrictions on exportation different from or more onerous than those imposed on such exportation to any other country." Austria also undertakes to impose no restriction or prohibition, or levy any duties on imports from or exports to the territories of the Allied or Associated States which shall not equally apply or extend to any other State or foreign country. Free access to the Adriatic is accorded to Austria by privilege of freedom of transit over territories and in the ports formerly her own. Freedom of transit will extend to postal and wire services.

Military, Naval and Air Clauses.—Within three months the military forces of Austria must be demobilized to the extent detailed in schedules. The total military forces in the Austrian Army is not to exceed 30,000 men. Compulsory military service is to be abolished. Manufacture of arms and munitions is to be confined to one factory under ownership and control by the State. All other establishments are to be closed down and converted to purely commercial uses.

All warships, submarines included, are to be surrendered, including the Danube flotilla. Warships, including submarines, under construction are to be broken up. The construction or acquisition of any submarine even for commercial purposes is forbidden. The armed forces of Austria must not

include any military or naval air forces. Dirigibles also are forbidden.

Signature of the Treaty.—Rumania and Jugo-Slavia failed to sign the Treaty because they were not prepared to assume the guarantees imposed with respect to racial, religious, and linguistic minorities in their ceded territories. As for the Serbo-Croat-Slovene state, it is believed that sufficient pressure will be brought to bring about the undertaking. Rumania, it is reported, will not give her signature. Her position is that such guarantees will reflect on sovereign rights and will induce the minorities to seek rebellion for fancied violations. Pressure, in the form of withholding her reparation award, will or will not be effective in the proportion that such award will bear to advan-

tages secured in Hungary in defiance of the wishes of the Supreme Council of the Peace Conference (see *infra*).

The Chinese delegates rivalled the Italian delegates in their eagerness to sign the Austrian Treaty. Prevented from signing the German Treaty because they were not permitted to make reservations as to the Shantung award, they were now in position to align themselves with the Powers as signatories in the Peace conclusions. Lou Tseng-tsiang, Minister for Foreign Affairs, signed for China. The significance of Chinese adhesion to the Treaty with Austria lies in the fact that she becomes thereby a member of the League of Nations. The Covenant appears again in the Treaty with Austria as Part I, equalling its prominence in the German Treaty.

THE PROBLEM OF RUMANIA

Invasion of Hungary.—Rumania has been a thorn in the side of the Allies throughout the peace negotiations. Dissatisfied with the boundaries allotted to her on the west by the Peace Conference, Rumania sought to establish them along the lines of her own aspirations and sent troops to the River Theiss to fix her new boundaries. A message from the Supreme Council to cease operations along the River Theiss was ignored. The crisis was reached when the Rumanian advance westward continued to the Hungarian capital in defiance of an ultimatum of the conference (see also III, *Hungary*). Budapest was occupied on Aug. 4 by about 30,000 Rumanian troops. Immediately after the occupation, the Hungarian Government was served with an ultimatum making demands far in excess of the armistice conditions previously imposed by the Allies and accepted by Austria-Hungary. The ultimatum was given in the name of the "Rumanian Supreme Command" and as a condition of "cessation of hostilities requested by the Hungarian Government." The ultimatum demanded the reduction of the Hungarian Army to 15,000 men, the surrender of 30 per cent. of the harvest animals and farm machinery, 50 per cent. of the railway supplies, a large proportion of the Danube shipping, and equipment and

supplies for an army of 300,000 men, together with rations for the Rumanian forces. It further demanded that:

For the supervision and execution of this agreement, a Rumanian mission will be established in Budapest. This mission will operate until the ratification of peace between Rumania and Hungary by legally constituted Hungarian authorities. The mission will enjoy all diplomatic privileges and the immunity granted by civilized nations.

The Allies' Ultimata.—The occupation of Budapest and the Rumanian ultimatum, so utterly in excess of the Allied armistice conditions, brought forth another ultimatum from Paris, an ultimatum which was to be the forerunner of other ultimata issued from time to time. Rumania was informed that retaliatory measures would be taken if requisitions were made in Hungary and that these measures would take the form of deduction of such requisitions from her reparation account under the German and Austrian Treaties. Rumania was further informed that the fixing of the amount of reparation to be made by Hungary, as well as its distribution, was a matter under the control of the Allies, and that until final decision was reached, all war, railway, and agricultural material in Hungary and subject to distribution was under the common administration of the Al-

II. INTERNATIONAL RELATIONS

lied powers. The Supreme Council, thereupon, announced that the Rumanian ultimatum to Hungary demanding supplies and imposing condition for a new armistice was invalid and that Hungary should ignore it.

The Rumanian Government prevented the publication of this announcement both at Budapest and Bucharest and continued the enforcement of its own ultimatum to Hungary. Rumania's operations in Hungary went on unchecked by Allied vetoes, except in so far as she herself decided to modify them. In October the situation was reached where the Allied powers demanded an expression of intention from Rumania as to her operations in Hungary. In a note of Oct. 17,

The Supreme Council expresses the formal desire to obtain within the shortest time a brief and clear reply from the Rumanian Government on all points discussed. As the situation in Hungary demands an early decision in order to ensure the reestablishment of normal conditions, which is absolutely essential for the security of Central Europe, the principal Allied and Associated Powers cannot allow Rumania to prolong dilatory negotiations.

Another ultimatum was issued on Dec. 3. After reciting previous communications the note continued:

If the Supreme Council had insisted upon its formal notification, it would have, in view of the indefinite reply received from Bucharest, severed relations with Rumania, since, despite repeated requests, Rumania has agreed to nothing during the period of several months. However, desirous of incontestably manifesting its

moderation and to evidence the extreme regret with which it would see Rumania separated from the Allies, the Supreme Council has decided to accord a further and last delay of six days to Rumania. . . . The Council hopes this favor will be fully appreciated in Bucharest by the new Government, whose decision will definitely indicate the political intention of Rumania and her respect or her disrespect for the decisions of the Peace Conference.

Full and satisfactory compliance with this ultimatum, as in previous cases, was lacking. The policy of Rumania was to prolong the negotiations until the Peace Conference adjourned, when further negotiations would be carried on with the various Foreign Offices with greater assurances of success in retaining the advantages which she had secured in Hungary.

It has been frequently asserted that the Rumanian situation owes its present state of uncertainty, despite the vetoes of the Conference, to the lack of coöperation among the Allies themselves. Great Britain and the United States are a unit in compelling Rumania to respect the will of the Conference as announced in its ultimata. France and Italy have been charged with encouragement of Rumania's aims. Italy's pre-war *entente* with Rumania has been strengthened by the former's alliance for coöperation against the new state, Jugo-Slavia, which has arisen between them. As for France, a strong and well ordered Rumania is looked upon as an insurmountable barrier against Russian Bolshevism.

THE TREATY WITH BULGARIA

Frontiers.—On Sept. 19 the Bulgarian delegation was handed the Peace Treaty by the Supreme Council of the Peace Conference and was given 20 days to consider it. It is arranged on the same plan as the Treaty with Austria, the following parts being identical with the Austrian Treaty: Preamble, Covenant of the League of Nations, Penalties, Aerial Navigation, and Labor Convention.

On the north the frontier with Rumania remains unchanged. It is understood, however, that efforts will be made to induce Rumania to restore the Dobrudja to Bulgaria. On the west the frontier with the Serb-Croat-Slovene State for the most part fol-

lows the line of the old frontier with Serbia. Small portions are ceded to the new State, of which the most important is the town of Strumnitza and the surrounding district. Modifications are made on the south. A slight modification is made on the southeast, where a small piece of Turkish territory northwest of Mustafa Pasha is taken in. The Black Sea forms, as before, the eastern frontier.

Bulgaria renounces in favor of the principal Allied and Associated Powers all rights and titles over its territories in Thrace which belonged to the Bulgarian Monarchy, and which have not been assigned to any State. Bulgaria undertakes to accept what-

II. INTERNATIONAL RELATIONS

ever settlement may be made by the principal Powers in regard to these territories. The Powers, on the other hand, undertake to ensure economic outlets for Bulgaria to the Ægean Sea under conditions to be fixed later.

Political Clauses.—Bulgaria recognizes the Serb-Croat-Slovene State. A commission of seven members, five nominated by the principal Powers and one each by the Serb-Croat-Slovene State and by Bulgaria will trace on the spot the new frontier line. The provisions for the protection of racial, linguistic, and religious minorities reproduce exactly those laid down in the Austrian Treaty. The Treaty of Brest-Litovsk is abrogated.

Reparation and Financial Clauses.

—Bulgaria is required to pay as reparation the sum of 2,250,000,000 francs in gold, to be paid in series of half-yearly payments of Jan. 1 and July 1 in each year beginning on July 1, 1920. The sums will be remitted through an inter-Allied commission created by the Treaty to the Reparation Commission established in the German Treaty. By way of special compensation for the destruction caused to the coal mines in Serbian territory by her armies, Bulgaria undertakes to deliver to the Serb-Croat-Slovene State, during five years, 50,000 tons of coal a year. Financial clauses require payments in the following order of priority: (1) cost of military occupation; (2) such part of the external Ottoman public debt as a commission appointed for the purpose may attribute to Bulgaria in respect of Turkish territory ceded to her; (3) cost of reparation as prescribed by the Treaty. The economic clauses are of the same character as those in the Austrian Treaty, except that for one year customs duties on imports from the Allied and Associated States will not be higher than the favorable duties when the war began.

Military, Naval and Air Clauses.—

The total number of the effectives of the Bulgarian Army is fixed at 20,000, including officers. Within three months the Bulgarian Army is to be demobilized and voluntary enlistments substituted. The manufacture of war material is confined to one single factory, controlled and owned by the State; all other establishments are to

be closed or converted. All warships, submarines, and air forces are to be surrendered.

The Solution of Thrace.—The disposition of Thrace was left for ultimate decision by the Peace Conference, perhaps by the League of Nations. However divided and allotted Thrace is to afford an economic outlet for Bulgaria on the Ægean. Several plans were devised. There is the Tardieu plan of giving Greece a small section in the southwestern part of Western Thrace, Greece also to take Eastern Thrace, and the debatable middle ground to be internationalized under the League of Nations. There is also the plan advanced by Under-Secretary of State Polk, by which approximately one-half of Western Thrace was to be an international state under the supervision of the League of Nations, one-quarter to go to Bulgaria outright and one-quarter to Greece outright. The ultimate decision will probably rest on the size of the hinterland of Thrace that is to be given to the nation that takes the mandate for Constantinople. In the event of the United States taking the mandate, both eastern and western Thrace will be included in the territory surrounding Constantinople.

Signature of the Treaty.—The Treaty was signed on Nov. 27 at Neuilly, just outside of Paris, and is known as the Treaty of Neuilly. Serbia and Rumania did not sign, though their concurrence was most necessary to make the Treaty effective. In the section on Austrian Treaty (*supra*) it was pointed out that these nations did not sign the Austrian Treaty because of their objection to the provisions for the protection of religious, racial, and linguistic minorities, the enforcement of which by the League of Nations was interpreted as interference in the internal affairs of these two nations. The Supreme Council notified both nations that they could not sign the Bulgarian Treaty unless they first signed the Austrian Treaty. Serbia yielded on Dec. 5, when the Jugo-Slav delegates signed the Bulgarian Treaty, at the same time signing the financial annexes to the Austrian Treaty and the clauses protecting minorities. The assent of Rumania was still withheld at the end of the year.

THE TREATY OF ALLIANCE WITH FRANCE

Origin and Interpretation of the Treaty.—The United States is to remain entangled in the affairs of Continental Europe. On June 28 treaties of alliance were concluded at Versailles between France and the United States and between France and Great Britain concerning military aid that is to be given France in the event of non-justified German aggression. The practical genius of the French was not content to rely on the phrases of the Covenant of the League of Nations. Of the great Allied powers, France alone borders on the German territory. Possibility of aggression menaces France more than any other country. Years may go by before the League of Nations comes into force. With the United States far away and Britain across the Channel, the French pressed their Allies for a guarantee pact, the proclamation of which would serve notice that, League or no League, the enemy would confront the same Allies in the event of renewed aggression.

Clemenceau placed his faith in the alliance. Although expecting a League of Nations, he felt that France would be protected by the new Triple Alliance during the years necessary for its full functioning. In a statement to the Chamber on Sept. 24 he said:

Should the United States reject the League of Nations, two treaties of alliance between France and Great Britain and France and the United States exist. Nevertheless, it was precisely because we felt that the League of Nations was an insufficient guarantee for some years to come that these treaties were drawn up. The League of Nations for the present has nothing to do with the Franco-British-American treaties, which constitute sufficient guarantees for France.

To President Wilson the treaty was but a pledge supplementary to that to be afforded by the League of Nations, whose approval must eventually be secured. On May 9 he announced:

Happily, there is no mystery or privacy about what I have promised the Government here. I have promised to propose to the Senate a supplement in which we shall agree, subject to the approval of the Council of the League of Nations, to come immediately to the assistance of France in case of unprovoked attack by Germany, thus merely hastening the action to which we should be bound by the Covenant of the League of Nations.

The triple convention makes France sole beneficiary. No obligation is imposed on her, but her allies bind themselves to support her with military aid in the event of German aggression. It is a guarantee pact with Britain and the United States as guarantors. France does not undertake to come to the assistance either of Great Britain or the United States. Germany alone is the objective. British or American assistance cannot be counted on if France becomes involved with any nation other than Germany. Moreover, the treaties are interdependent. Neither Britain nor the United States is bound to give separate aid against Germany. The combined action of the guarantors must be invoked.

The treaties must be submitted to the Council of the League of Nations which must give it recognition. The Council alone can decide whether the emergency has arisen to call the terms of guarantee into effect, and the Council may also decide whether the occasion has arisen when the League itself can assure protection, whereupon the treaties as between the parties are at an end.

Text of the Treaty.—The text of the treaty is as follows:

Whereas the United States of America and the French Republic are equally animated by the desire to maintain the peace of the world so happily restored by the Treaty of Peace signed at Versailles the 28th day of June, 1919, putting an end to the war begun by the aggression of the German Empire and ended by the defeat of that Power; and

Whereas the United States of America and the French Republic are fully persuaded that an unprovoked movement of aggression by Germany against France would not only violate both the letter and the spirit of the Treaty of Versailles to which the United States of America and the French Republic are parties, thus exposing France anew to the intolerable burdens of an unprovoked war, but that such aggression on the part of Germany would be and is so regarded by the Treaty of Versailles as a hostile act against all the Powers signatory to that Treaty and as calculated to disturb the peace of the world by involving inevitably and directly the states of Europe, and indirectly, as experience has amply and unfortunately demonstrated, the world at large; and

Whereas the United States of America and the French Republic fear that the stipulations relating to the left bank of the Rhine contained in said Treaty of Versailles may not at first provide adequate security and protection to France

II. INTERNATIONAL RELATIONS

on the one hand and the United States of America as one of the signatories of the Treaty of Versailles on the other;

Therefore, the United States of America and the French Republic having decided to conclude a treaty to effect these necessary purposes, Woodrow Wilson, President of the United States of America, and Robert Lansing, Secretary of State of the United States, specially authorized thereto by the President of the United States, and Georges Clemenceau, President of the Council, Minister of War, and Stephen Pichon, Minister of Foreign Affairs, specially authorized thereto by Raymond Poincaré, President of the French Republic, have agreed upon the following articles:

ARTICLE I.—In case the following stipulations, relating to the left bank of the Rhine, contained in the Treaty of Peace with Germany signed at Versailles the 28th day of June, 1919, by the United States of America, the French Republic and the British Empire among other Powers,

Article 42.—Germany is forbidden to maintain or construct any fortifications either on the left bank of the Rhine or on the right bank to the west of a line drawn 50 kilometers to the east of the Rhine.

Article 43.—In the area defined above the maintenance and assembly of armed forces, either permanently or temporarily, and military manoeuvres of any kind, as well as the upkeep of all permanent works for mobilization are in the same way forbidden.

Article 44.—In case Germany violates in any manner whatever the provisions of Articles 42 and 43, she shall be regarded as committing a hostile act against the Powers signatory of the present Treaty and as calculated to disturb the peace of the world.

may not at first provide adequate security and protection to France, the United States of America shall be bound to come immediately to her assistance in the event of any unprovoked movement of aggression against her being made by Germany.

ARTICLE II.—The present treaty, in similar terms with the treaty of even date for the same purpose concluded be-

tween Great Britain and the French Republic, a copy of which treaty is annexed hereto, will only come into force when the latter is ratified.

ARTICLE III.—The present treaty must be submitted to the Council of the League of Nations, and must be recognized by the Council, acting if need be by a majority, as an engagement which is consistent with the Covenant of the League. It will continue in force until, on the application of one of the Parties to it, the Council, acting if need be by a majority, agrees that the League itself affords sufficient protection.

ARTICLE IV.—The present treaty will be submitted to the Senate of the United States at the same time as the Treaty of Versailles is submitted to the Senate for its advice and consent to ratification. It will be submitted before ratification to the French Chambers of Deputies for approval. The ratifications thereof will be exchanged on the deposit of ratifications of the Treaty of Versailles at Paris or as soon thereafter as shall be possible.

Exclusion of Italy.—Italy was not made a party to the pledge because she had been freed from future Austro-Hungarian aggression. Her old enemy had been cut up into smaller parts, each of which was militarily weaker than herself. Nevertheless, the Italian press commented on the exclusion of Italy with asperity, pointing out that being of kindred race she should have been asked to take part in the treaty with the French. The official Italian view was more explicit. The Italian Premier, Nitti, made a direct plea to the French for an alliance:

If a new clash should come between France and Germany, you would look to far-away America and to England which has not ceased to be an island. But we Italians also exist. Think what would have happened in 1914 if we had not been neutral, if you had been obliged to face us in the South.

THE ANGLO-PERSIAN TREATY

In August the fact became known that Great Britain had concluded a secret treaty with Persia, which, according to American and French opinion, would make of Persia a British protectorate. The full text of the treaty was made public on Sept. 19. The pact appears to have been concluded on Aug. 9. The most prominent feature of the treaty is a loan of £2,000,000 at seven per cent, redeemable in 20 years. The loan is to have precedence over all debts of Persia, except a former loan of £1,250,000 on May 8, 1911. In return for the new loan Per-

sia pledges her custom receipts. Great Britain undertakes to supply, at the cost of Persia, expert advisers, military officers, munitions, and equipment in order to form an army to preserve order in Persia and along her borders. Two letters accompanied the treaty, written by the British Minister at Teheran to the Persian Prime Minister. They make clear Great Britain's intention to aid Persia in recovering her war claims and arranging her boundary lines. It is also set forth that Great Britain will make no charge for her troops sent to the help

II. INTERNATIONAL RELATIONS

of Persia during the war, while, on the other hand, Persia will charge no indemnity for damage caused by them.

The U. S. Department of State is understood to have indicated that the United States did not look with favor on the treaty. In objecting to it the Department took the position that the treaty violates the principles underlying the League of Nations; that, while the League is not yet organized, the acceptance of its principles by its signatories morally obliged them to abstain from practices contrary to their letter. Great Britain officially denied that she had protectorate designs over Persia and stated that her policy with

regard to Persia was one of assistance only.

On Oct. 11 the Persian Foreign Minister, Prince Firuz, stated at Paris that Persia will submit the pact to the Persian Parliament for approval and then to the League of Nations. He further stated that Persia, finding herself unable to rehabilitate herself after the war, turned to Great Britain. He said:

Nothing in this agreement affects the independence of Persia. It gives no permanent rights to Great Britain nor any monopolies. We can fix ourselves the powers of counselors and military instructors it may please us to accept from England.

MEXICAN-AMERICAN RELATIONS

The Mexican Situation.—Relations between Mexico and the United States during the year were characterized by diplomatic crises that brought forth caustic notes and rejoinders from the capitals of both countries. There were the usual border incidents, marked by bitter feeling, which, on the one hand, set in motion "punitive expeditions" into Mexican territory, and, on the other, occasional strong protests against what in Mexico City was interpreted as invasions of Mexican sovereignty. That the situation is grave has been admitted in Washington. It has been frequently asserted that it owes its seriousness to the lack of a strong central Government in the southern republic. The Carranza Government was recognized by the United States as the *de facto* Government in the expectation that it would bring about stability. Recent events seem to indicate that that Government is waning in power and is leaving large areas of territory unguarded and ungoverned (see also III, *Mexico*), with the result that irresponsible chieftains and organized bandits have flouted American rights, destroyed American property, and murdered American citizens. A narration of these untoward incidents is unnecessary for the purposes of this section. It is sufficient to observe that there has been established a "train of wrongs," of which, in the language of Congress circles, the Jenkins incident was the "caboose."

The Juarez Expedition.—In June American troops crossed the Mexican

border and dispersed the Villista army that was operating against Juarez. The Carranza Government protested, but it was asserted at the time in unofficial circles that the protest was for the purpose of keeping its records straight and that in reality it was not displeased with the cooperation of the American arms in keeping inviolate its northern stronghold at Juarez. Mexico City newspapers reflected the attitude of its Government. *El Herald* pointed out editorially that the action of the United States troops was magnanimous and entirely justified. *El Universal* said editorially that the conduct of the American forces could not be considered an offense to Mexico. The statement issued by the Department of State on June 16 indicated that for once Mexican and American views were in accord:

The dispatch of troops across the border into the city of Juarez should not be considered in any manner as unfriendly to the Mexican Government, but was made necessary solely by the fact that the rebel forces had occupied such positions in and about Juarez that their shots crossed the border into American territory and endangered the lives of American citizens. After suffering the effects of this fire, in which several persons on the American side of the border were wounded, the American commander moved his troops across the line in order to drive the rebels away, and for no other purpose whatsoever.

On July 25 President Wilson issued a proclamation tightening the embargo on passage of arms and ammunition into Mexico. The President as-

II. INTERNATIONAL RELATIONS

serted in justification of the embargo that he "found that there exists in Mexico such conditions of domestic violence promoted by the use of arms and munitions of war procured from the United States" as to put into force the resolution of Congress in March, 1914, empowering him to control passage of munitions to Mexico.

Outrages and Protests.—The accumulation of outrages against American lives and property resulted in the sending of a sharp note to the Carranza Government that unless steps were taken to put a stop to the series of murders and outrages, the American Government would radically change its policy. The occasion of this note was the murder of Peter Catron, an American citizen, in San Luis Potosi in June. The note was dated July 22 and the second and concluding paragraph was as follows:

I am also instructed to state that should the lives of American citizens continue to remain unsafe and these murders continue by means of the unwillingness or inability of the Mexican Government to afford adequate protection, my Government may be forced to adopt a radical change in its policy with regard to Mexico.

The Mexican reply, dated July 28, was typical of the notes that issued from the Carranza Government. It was caustic and inconclusive and resorted to the use of the taunt that Mexico was not the only country where lawlessness "in absolute terms" prevailed. "It seems strange," the note said, "that it should be exacted that even in depopulated regions human life should be protected in a more perfect manner than in the most populous cities of the most cultured countries, where bloody crimes often occur without the respective Governments thereby becoming the object of severe observations." This was a fling at recent race riots in Washington, where martial law was proclaimed. The Mexican note also argued that many of the misfortunes that befell foreigners in Mexico were due, not to the failure of the Mexican Government properly to protect them, but to their own eagerness for exploitation and profit:

The Government of Mexico has always endeavored, as far as possible, to give full security to the lives of foreigners as well as of its nationals, but the fact is that for-

eigners, through ignorance, the lack of prudence, or rash eagerness for profit, venture to remain or to travel in dangerous regions, thereby incurring the risk of becoming the victims of offenses and even trusting to escape offenses because of their being foreigners.

In August another crisis impended in the capture of Lieut. Paul H. Davis and Harold G. Peterson, American Army aviators, by Mexican bandits near Candelaria, Tex., while patrolling the border. They were threatened with death on failure to pay a \$15,000 ransom. The State Department called upon the Mexican Government "for quick action" to effect the release of the aviators. The incident was closed by the payment of the ransom by the United States military authorities on promise of reimbursement by the Carranza Government. The "Langhorne punitive expedition" penetrated many miles into Mexican territory in unsuccessful pursuit of the bandits.

The Jenkins Incident.—Relations were brought almost to the breaking point by the capture of Wm. O. Jenkins, United States Consular Agent at Puebla, Mexico, by bandits who held him for ransom at \$150,000. Release was eventually secured by agreement to pay the bandits 300,000 pesos in addition to 50,000 pesos stolen from his safe. The total amount is about \$200,000 in American currency. The first payment was made on Oct. 28 and consisted of 34,000 pesos cash and two drafts of \$5,000 American currency each. Subsequent payments were to be made as rapidly as Jenkins could secure the funds until the total was paid. The balance was guaranteed in writing by five responsible citizens of Puebla and Mexico City.

The situation reached its acute stage when Jenkins was arrested by the Mexican authorities on charges by officials of Puebla that Jenkins was not abducted by Frederico Cordoba, the bandit lader, but was in connivance with him. Twelve persons swore to statements before a judge in Puebla, declaring that Jenkins had been seen in company with Cordoba under no restraint and in apparent understanding with his alleged captors. Subsequent investigation showed that two persons made declarations against Jenkins under threat of execution. One witness was threatened with a pistol, another

II. INTERNATIONAL RELATIONS

suspended by a rope, and still another beaten until he made the desired declaration against Jenkins.

The note of the American Government, dated Nov. 20, presented by George L. Summerlin, Chargé d'Affaires, expressed "surprise and exasperation."

The Government orders me to add that persistent persecution and subsequent harassing of Mr. Jenkins cannot but have a very serious effect on the relations between the two countries for which the Mexican Government will be solely responsible. Therefore, I am ordered to demand the immediate liberation of Mr. Jenkins.

The demand for "immediate liberation" was not complied with. Instead, the Carranza Government sent a long note discussing the legal aspects of federal and state jurisdiction in Mexico, the inference being that the arrest of Jenkins by state authorities at Puebla was not within Mexican federal scope or review. The note sought to make it appear that a fair trial would be accorded Jenkins. The principal contention of Carranza was that autonomy of states in Mexico was guaranteed by the Mexican constitution and that it was impossible for Mexican federal authorities to interfere with trials either of natives or foreigners in courts of the states. The note was dated Nov. 26 and was signed by Hilarlo Medina, Sub-Secretary of Foreign Affairs. It ended as follows:

Neither in the United States nor in Mexico can a citizen on trial be released by order of the executive. It would be strange if in Mexico an American citizen had more rights than he enjoys in his own country or more than a Mexican in his own country.

The Government of Mexico cannot concede to American citizens more rights than Mexicans enjoy in the United States.

The Government of the United States seems to be convinced of the absolute innocence of Jenkins, although the Mexican Government is now investigating this case without pretending to maintain that Jenkins is guilty.

It limits itself to submitting anterior considerations to the United States, expecting that the Department of State will suspend opinion until the courts pronounce their decision with the assurance that on the part of the Government officials there does not exist a purpose to cause difficulties or to persecute Mr. Jenkins, but only a true desire to proceed with justice.

The situation was relieved on Dec. 4, when Jenkins was advised of his

release by reason of some one entering bail for \$500 in his behalf but without his authority, knowledge, or consent. Jenkins had steadfastly refused to enter bail and in this position he was supported by the State Department. The bail was entered by J. Salter Hansen, who was, at that time, believed to be a Mexican agent. The release of Jenkins brought forth a new note from the Carranza Government, on Dec. 16, in which the original Mexican stand was maintained. The release was referred to as removing the misunderstanding between the two Governments. The Jenkins case in the opinion of the Mexican Government is a purely legal one upon which Washington is not qualified to pass as to innocence or guilt. The result will depend on the application of Mexican laws in Mexican courts.

The Mexican Government cannot admit that American citizens can be tried and absolved on simple reports from the State Department nor on recommendations or suggestions from the United States, instead of trying them by Mexican courts and according to Mexican laws. . . .

Jenkins, having been granted freedom by the Puebla court, which case is now being considered by the highest court of the republic in order to determine which judge is competent to try him, the Mexican Government takes the liberty to hope that this case shall no longer disturb the good relations which it sincerely hopes exist between the American and Mexican peoples.

On Dec. 30 it was reported from Mexico City that the Supreme Court of Mexico had decided that the Federal courts had jurisdiction of the Jenkins case and were competent to pass upon its merits.

Embargo on Arms.—The State Department announced on Dec. 24 that outstanding unused licenses issued prior to Sept. 30 by the War Trade Board or the War Trade Section of the State Department for the exportation of arms or munitions of war to Mexico had been revoked, effective Jan. 1, 1920. After that date no munitions of war or arms are to be sent into Mexico except under license of the Secretary of State, who will exercise very rigid supervision. The effect of the new order is to impose even stronger restrictions on the exportation of arms and ammunition into Mexico than those that obtained in the recent past.

III. FOREIGN HISTORY

LATIN AMERICA

ROSCOE R. HILL

General Survey.—The first year of the post-war reconstruction period found the countries of Latin America confronted with some of the most serious problems of their history. The high cost of living, Bolshevik and anarchistic propaganda, and general industrial and social unrest were phenomena common to all the republics. Living conditions were intolerable, and as a result the demands of labor became excessive. To secure its demands labor resorted to strikes in which violence, rioting, and the destruction of property were common, with a consequent suspension of business activity. By the close of the year strikes were less frequent, and it appeared that labor had settled down to secure its demands by a more gradual reorganization of conditions.

Notwithstanding these adverse factors, much was done by the respective countries to foster industrial expansion and to secure agricultural development. Encouragement of every sort was given to the production of necessities with a view to lessening the cost of living and making the various countries more self-sustaining. Commercial expansion continued, and added emphasis was placed on the importance of the north and south lines of trade. An indication of the growth of Latin-American commerce is given by the figures for the trade with the United States. For the fiscal year ending June 30, 1919, the imports to the United States from Latin America amount to \$1,125,593,105, as compared with \$1,023,419,483 for the preceding year; and the exports from the United States to Latin America were \$817,542,584, as compared with \$718,572,645 for the fiscal year 1918. That these figures were not larger was due to inability to secure sufficient tonnage. In general, the financial sit-

uation of the several Governments was not bad, although most of them were forced to find means of increasing their revenues in order to meet the increasing costs of administration. The need of internal improvements and public works was recognized everywhere. So far as funds were available, railway construction, road building, sanitation, and erection of schools were undertaken in all countries.

The chief feature of the international relations of Latin America for 1919 was the participation of the republics in the Peace Conference at Versailles. The Latin-American States represented were Bolivia, Brazil, Cuba, Ecuador, Guatemala, Haiti, Honduras, Nicaragua, Panama, and Uruguay. Before the end of the year several of these countries had ratified the Peace Treaty with Germany, and in addition it was accepted by Argentina and Paraguay, which were invited to join the League of Nations. The general friendly relations of Latin America with the Great Powers were manifested by the conclusion of numerous treaties. Mexico alone found herself in strained relations, largely on account of her attitude toward foreigners and foreign investments.

The interrelations of Latin-American countries on the whole were of a friendly character, as is indicated by the diplomatic exchanges regarding boundaries, commerce, and other matters. The noteworthy exception to this friendliness lay in the strained relations of Peru and Chile over the Tacna-Arica question (*A. Y. B.*, 1918, p. 103), which fortunately did not come to an open break. Nicaragua and Honduras were not cordial for a time, because of the attitude of the former toward revolutionists who were seeking to overthrow the Betrand régime in the latter.

The United States maintained generally the same friendly relations with Latin America as in the preceding year. With Mexico, however, diplomatic relations were at the breaking point most of the year on account of murders of United States citizens, border raids and difficulties, and the general disorganization south of the Rio Grande. The renewed consideration of the Colombian treaty by the U. S. Senate served to relieve the tension somewhat in that quarter.

The year brought forth new evidences of Pan-American solidarity. The second Pan-American Commercial Conference, held in Washington in June and attended by representatives of all the American republics, carefully considered the problems of trade. The first American Congress of Economic and Commercial Expansion held in Montevideo (Jan. 28-Feb. 8) was attended by representatives of 14 countries. It discussed a variety of topics and passed a series of resolutions covering economic and commercial expansion in all its phases.

The internal political situation of the Latin-American countries was more disturbed than in 1918. A military *coup d'état* in Peru overthrew the president and brought in a new *régime*. In Costa Rica and Honduras, after months of revolution, the Presidents fled and the opposition parties came into power. Mexico continued to be torn by dissension. In other countries there was much valuable legislation dealing with economic, social, and educational matters. Uruguay adopted an entire new constitution and Panama added important amendments. Even the republics that suffered revolution made advantageous constitutional changes.

Germany's propaganda to recover her lost trade and prestige made its appearance in Latin America, especially in Argentina, Brazil and Mexico. A newspaper was established in Buenos Aires "to protect and further German Kultur and trade," and the German banks resumed operations. Plans for colonization of Germans were made, and before the new year many colonists had arrived in Argentina.

Argentina.—President Hipólito Irogoyen, whose term expires in 1920,

occupied the executive chair during 1919. His message to Congress (May) gave a detailed explanation of the attitude of Argentina toward the Great War. Numerous strikes occurred, especially during the first half of the year, and the situation was further complicated by Bolshevik propaganda which was particularly active in Argentina. The principal strikes involved the port laborers at Buenos Aires, who tied up transportation for months, street-car employees and cab drivers (January), and printers (May), who caused suspension of the publication of the metropolitan newspapers. Rioting occurred in January, but an attempt to declare martial law was checked by opposition in the Senate. The situation during February was further complicated by a lockout by the employers of port labor, and business and transportation were generally suspended. A general strike called on May 1 was followed by Government intervention to adjust the difficulty. This attempt was not wholly successful in ending the strike, although a number of Bolshevik agitators were deported. The causes given for the unrest and disturbances were both political and economic, and included the attitude of the Administration towards the war and the collapse of Germany, the expectations of industrial revival which were blighted by the end of the war, and professional agitation. With a view to checking pernicious propaganda, a society of "Argentines of Order" was formed, which issued (July) a proclamation against the Reds. The high cost of living complicated the economic situation and much study was given to means of solving the problem.

A projected loan of 200,000,000 pesos to the Allies to be used in the purchase of foodstuffs from Argentine was defeated in the Senate (April). In October Germany made efforts to secure a loan of 100,000,000 pesos for a similar purpose. Germany's plans to secure a revival of her trade were very manifest throughout the year. Plans for colonization of German settlers were perfected, and the first contingent of immigrants arrived in September. During the year the Argentine Administration lost no opportu-

III. FOREIGN HISTORY

ity to show its friendliness to Germany. Argentina and Great Britain were near a diplomatic rupture over the purchase of a German steamer *Bahia Blanca* by the former (August). A convention was signed with Peru regarding commissions to take testimony to be used in courts, and a treaty was concluded with Bolivia respecting frontier control (January). Upon the invitation of the signatories to the Peace of Versailles the League of Nations Covenant was ratified by Argentina (July).

Bolivia.—José Nestor Gutiérrez, whose term expires in 1921, occupied the Presidency during the year. Elections for Senators and Deputies were held in May, and Congress assembled in regular session in August. The Presidential message dealt largely with finance. The important legislation of the year included a law extending the moratorium to Sept. 30 (February), a new tax on liquors (January), an eight per cent. tax on mining receipts (January), a law regulating and facilitating the importation of fuel (March), one governing collection of revenues (March), and another to foster the silk industry (January). An executive decree provided for the consolidation of rubber properties.

The problem of an outlet to the Pacific came to the front because of the difficulty between Peru and Chile over the Tacna-Arica question (see "Chile," *infra*). The demand for a port made by the Bolivian Minister in Paris led to the resignation of the Minister of Foreign Affairs and the reorganization of the Cabinet in March. The publication of the secret treaty of 1904 between Bolivia and Chile, in which the countries agreed to support each other in claims against Peru, served to account for much of the Bolivian diplomacy. In November it was reported that Chile had announced that in certain circumstances she would cede the desired port to Bolivia. The Treaty of Versailles was ratified in November. A treaty of general arbitration was concluded with Venezuela (April), as well as one regrading diplomatic mail (February). A convention regulating frontier patrol was signed with Argentina (January). Railway and road construction were given much attention.

Brazil.—President-elect Rodrigues Alves was too ill to be inaugurated on Nov. 15, 1918, and died on Jan. 15 without assuming office. Vice-President Delfim Moreira administered the affairs of the country during the first months of the year. An election to fill the unexpired term of President Alves was held on April 13 and Epitácio Pessoa, Brazil's delegate to the Peace Conference, was chosen for the balance of the term 1918-22. He was inaugurated on July 28. In the organization of his Cabinet he varied the practice of the Latin-American republics by filling all the posts with civilians. The Cabinet was composed of Homero Baptista, Finance; Azevedo Marques, Foreign Affairs; Alfredo Pinto, Interior and Justice; José Pires do Rio, Transportation and Public Works; Raul Soares de Moura, Marine; João Pandiá Calogeras, War; Simoes Lopez, Agriculture. The programme of Pessoa, as set forth during a visit to the United States just before his inauguration, was "to bring closer together the countries of North and South America and to solidify their interests without antagonizing European countries, and to develop the commercial and economic relations of Brazil and the United States."

During September President Pessoa presented messages to Congress dealing with the reclamation project of the Northeast, with the reorganization of the departments of state which would provide a Ministry of Instruction and Public Health, and with the reorganization of the Lloyd Brasileiro steamship line. A Workmen's Compensation Act was passed, and a decree making corrections in the civil code was issued. The high cost of living was a serious problem. To remedy the situation a careful study was made of methods of increasing the production of necessities, and efforts were made to expand the trade of the country. Labor conditions were unsettled, the unrest being fomented by agitators and radical propagandists. Strikes were frequent and included those of port laborers, cotton-mill operatives, tobacco-factory employees, shoemakers, tailors, and bakers. Conditions were more normal late in the fall, although in October it was found necessary to deport a number of Reds.

III. FOREIGN HISTORY

The plans for securing a necessary increase in revenue included tariff revision, establishment of a consumption tax, increase of freight and passenger rates, and introduction of industrial and professional taxes. The programme of tariff revision and reform called for reductions in duties on raw materials and articles of food not produced in Brazil and the protection of home industries. With a view to furthering trade and friendly relations with the United States preferential treatment accorded to American goods during the war was continued during 1919. A commission visited England to study trade opportunities. A programme of national sanitation was undertaken to remedy conditions, especially in the interior. A treaty regarding diplomatic correspondence was concluded with Venezuela, one providing for the liquidation of debts and a boundary treaty were signed with Uruguay, and a postal convention was entered into with the United States.

Chile.—President Luis Sanfuentes, who was elected for five years in 1915, occupied the executive chair during the year. His message to the regular session of Congress (June) approved the League of Nations and discussed relations with Peru, national colonization, labor problems, education, finance, the nitrate industry, the conversion fund, foreign trade, public works, and the protection of industries. A special session of Congress assembled on Sept. 3. Cabinet crises involving reorganization were provoked in August and September over the Tacna-Arica problem and internal political questions.

Chile was confronted with the high cost of living, and numerous measures were taken to relieve the situation. Labor troubles occurred at various times, taking a Bolshevik turn at Antofagasta (February). A general strike (Sept. 6) in Santiago lasted only one day, an arbitration committee being appointed to settle the dispute. The Government considered plans for improving labor conditions, especially with reference to housing. Extensive plans for the construction of sanitary works, railway, highways, and public buildings were discussed, and it was known that much foreign

capital was available to carry out these projects. Eduardo Charne, the chemist, made public the invention of a reagent for precipitating nitrates without the use of heat. This invention will cut the cost of production by 50 per cent., will give a much purer product, and will revolutionize the basic industry of Chile. There was considerable agitation of the prohibition question, and a decree was issued forbidding the introduction and sale of liquor in the nitrate regions. Another decree gave rules explaining the coastwise shipping laws. A treaty of peace and friendship with Great Britain was ratified (November), which provided for the adjustment of difficulties by a permanent joint commission. A financial mission visited the United States and allied countries.

The Tacna-Arica problem (A. Y. B., 1918, p. 103) became acute during the year. The bitterness and ill feeling between Peru and Chile over this matter arises from the inability to secure an adjustment on the basis of the Treaty of Ancon (1880). The suggestion that the problem be submitted to the Peace Conference at Versailles was received with little favor in Chile. Disturbances and riots occurred in the disputed regions, which are under the control of Chile at present. There were reports of attacks on Peruvians living in these regions, and many of them returned to Peru. Chile claimed that these disturbances and the return of the Peruvians were due to economic conditions and that Peru was attempting to create an artificial situation prejudicial to Chile's interests in Tacna-Arica. Further complications to the problem arose from the demand of Bolivia for a port on the Pacific and the publication of the secret treaty of 1904 between Bolivia (*q. v.*) and Chile. Announcement was made (November) that Chile expected to cede the port to Bolivia, but at the close of the year the question of the Pacific still remained unsettled.

Colombia.—The presidency was occupied during 1919 by Marco Fidel Suárez, who was inaugurated in 1918. Internal political differences caused a reorganization of the Cabinet in March. The Presidential message (July) treated principally of education. A decree of April 11 made mod-

III. FOREIGN HISTORY

ifications in the income-tax law. Bolshevik agitation occurred, and in May there were riots in Bogota.

The revival of the discussion by the U. S. Senate (see I, *American History*) of the unratified treaty of 1914 was viewed with pleasure. The oil decrees considered confiscatory by the United States were rescinded in order that ratification might not be retarded. The omission of the apology clause was much criticized by part of the Colombian press. In the hope that the treaty would soon be ratified and the indemnity paid, plans were made for spending the money. The fund is to be administered by a special commission and used for railways, roads, canals, port works, sanitation, commercial and war marine, equipment of the army, and increase of educational facilities. A boundary treaty with Ecuador was negotiated (July). A notable step in educational progress was the opening of a university for women.

Costa Rica.—Frederico Tinoco, who assumed the Presidency after the revolution of 1917 (*A. Y. B.*, 1917, p. 79) was the executive during the first half of 1919, although he was still unrecognized by the United States. The general elections for members of the legislature and mayors were held on March 2. At the opening of the regular session of Congress (May 1) Tinoco presented his message, which gave a summary of the international and national policies of the Administration, outlined the condition of the country, discussed the measures taken during the preceding year, and presented a programme of sanitation. Another message in July discussed the exclusion of Costa Rica from the preliminary peace arrangements and blamed President Wilson for the attitude of the Allied powers. A new penal code was promulgated (April 11) which replaced the one that had been in force for about 40 years. The conversion of the internal debt was undertaken according to the terms of a law of Dec. 14, 1918.

Political unrest and revolution played a most important part in Costa Rican history. In view of threatened attack by political exiles on the Nicaraguan frontier in January President Tinoco took active war measures and

placed some 3,000 men under arms. At first the rebels were repulsed and checked (May). Nicaragua became involved in the difficulty and was warned by the United States to prevent any attacks on Costa Rica from her territory. She denied any responsibility in the matter. During July the revolutionary movement assumed more serious proportions and in August Tinoco resigned and fled the country. Julio Acosta was made Provisional President, and plans for a new election were agreed upon. Among the reforms introduced was the restoration of the constitution of 1871.

Cuba.—President Mario Menocal, whose four-year term expires in 1921, held the executive office in 1919 and continued his efficient administration. The most important legislation was the new electoral code formulated by General E. H. Crowder, who had been invited to perform this task, which was passed by Congress in August. This law provided for the recognition of all political parties and the public counting of ballots. General Crowder also prepared a census law and a statute governing the pardoning power of the Executive, which were likewise adopted. Other legislation included the repeal of the obligatory military service law of 1918 (January), a law enlarging the consular service (May), an organic law of the judicial power (August), and a retirement and pension law for civil employees (June). There was much unrest among laborers, and numerous strikes occurred. The general strike in March was serious, and conditions became so critical that constitutional guarantees were suspended by the Senate and martial law declared. That complete political stability has not been achieved in Cuba was indicated by resolutions of the Liberal Party proposing American supervision of the general election, in view, as they said, of the arbitrary procedure of the Conservatives and the fear that a fair election could not be had.

Dominican Republic.—The Dominican Republic continued under the protectorate of the United States in charge of a military administration. On Feb. 25 Rear-Adm. Thomas Snowden assumed charge of the military government and declared the laws and

III. FOREIGN HISTORY

regulations of his predecessors in force. The principal executive decrees were one modifying the commercial code (Feb. 21), another prohibiting the emigration of laborers without express authority of the executive power (April), and a third creating a Tariff Commission which should investigate and report on a new tariff. The work of this Commission was completed during the year. Late in the year an agitation was started for the withdrawal of the American protectorate. Dr. Francisco Henríquez y Carvajal, the last constitutional President, was active in this movement.

Ecuador.—President Alfredo Baquerizo Moreno, whose four-year term expires in 1920, continued his able administration during 1919. The political situation was peaceful, and the labor troubles in Ecuador were not as serious as elsewhere. With a view to bettering the conditions of the working class, peonage and imprisonment for debt were abolished by legislative decree (June 8). A new law regulating the taxes on rum and wine went into effect on Jan. 1. A boundary treaty was signed with Colombia (July 9). The educational system of the republic was improved by the establishment of a graduate school at the National University.

Guatemala.—President Estrada Cabrera, whose sixth term expires in 1923, controlled the destinies of the country in 1919. The nation was free from disturbed political conditions. Martial law, which had been in force since the declaration of war in 1917, was raised (March 5). Reforms were made in the penal code, providing penalties for gambling, and a new tariff law was put in force (July). Elections for members of the legislature and judges were held Dec. 15. The Legislative Assembly ratified the Treaty of Peace with Germany on Oct. 3. A noteworthy extension of the educational system was made by opening a night school for women at the capital.

Haiti.—President Sudre Dartiguenave continued his administration in 1919. Early in the year the political situation brought on a Cabinet crisis. A new Cabinet was organized with Constantin Benoit, Minister of Foreign Relations and Justice, at its head. A law of Feb. 26 established

a National Board of Public Hygiene with power to control boards of public health, quarantine, and hospitals. This Board in April published rules and regulations concerning public hygiene. Two laws relating to primary education (June 13, Aug. 19) provided for the reorganization of methods of instruction and the course of study in primary schools. Other legislation included a new electoral law (Aug. 19), a law protecting trade marks (June 13), a retirement and pension law for civil employees (June 13), and a law governing the granting of mining rights (Feb. 26).

Honduras.—The term of President Francisco Betrand expired in 1919. The opponents of his Administration claimed that it would be impossible to secure a fair election, and under the leadership of Vice-President Membreño and General López Gutiérrez took up arms against the Government. There were wholesale arrests of the rebels, although many escaped from the country. A state of siege was declared in July. The rebels continued in the field with varying success until September, when President Betrand resigned and fled the country, thus giving the rebels complete control. General Gutiérrez assumed charge of affairs, being practically dictator. The Provisional Government under the Presidency of Francisco Bogran proceeded with the elections, which were held in October. General Gutiérrez and Membreño were the candidates. The former was elected by an overwhelming majority and the revolutionary *régime* was legitimized. At the same time deputies to the National Congress and magistrates of the Supreme Court were elected. The two problems of importance before the government were the return of German property seized during the war and the consummation of a union with Salvador. A law regulating the registration of trade marks was enacted (March 22).

Mexico.—Mexico continued in its chronic state of unrest, harassed by both internal and external difficulties. President Venustiano Carranza held the governmental machinery and controlled most of the territory of the republic. The three major problems confronting the Government were the

III. FOREIGN HISTORY

revolutionary activity, reconstruction and finance, and petroleum and foreign relations. A special session of Congress was called in May to consider modifications in the constitution, an oil and mineral-fuel law, reestablishment of the writ of *habeas corpus*, reorganization of the federal ministries and the tribunals of common law, and the creation of a Bank of the Republic. Carranza's message to the regular session of Congress (Sept. 1) discussed the banking and petroleum situation and the attitude of Mexico towards the Great War and the Peace Conference. Congress spent its time in endless debates, and the pressing problems remained unsolved.

Revolutionary activity (termed banditry in Mexico) continued everywhere. It was claimed by the Government that 50,000 men in the army were endeavoring to eliminate the opponents of Carranza and that two-thirds of the revenues were spent for this purpose. In the south a vigorous campaign was carried on against Emiliano Zapata, who was killed in April. His death, however, did not result in the complete pacification of the state of Morelos, Zapata's stronghold. Gen. Aurelio Blanquet, one of Huerta's supporters, landed in the southwest to assist the movement of Félix Díaz (April). Soon after, in a skirmish near Vera Cruz, Blanquet was killed, and the movement lost its vigor. The most persistent activity was on the part of Francisco Villa in the north. He looted various towns and gave frequent battle to the Government forces, who were not able to place any appreciable check on his movements. In May Villa proclaimed Gen. Felipe Angeles President and made himself Secretary of War. The struggle between the forces of Villa and Carranza for the city of Juarez in June caused the sending of United States troops across the border to protect the city of El Paso (see III, *International Relations*). Angeles was captured and executed by the Federalists in November. In reprisal Villa executed a large number of Carranzistas. Villa still remained an unsolved problem at the end of the year.

The general problem of reconstruction was a vital issue and was intimately connected with the finances of

the country. Efforts to float loans were unsuccessful. The banking question remained unsettled although it was discussed by Congress. The need of increased revenues was felt acutely. Education was considered a solution for many of the ills of the country, and the educational programme included plans for compulsory attendance, new buildings, and newer methods of teaching. A report of the Secretary of Industry showed increases in industries and production.

The petroleum question, which involved internal readjustments as well as delicate foreign relations, presented many difficulties. The confiscatory decrees of Carranza (*A. Y. B.*, 1918, pp. 101, 128) brought sharp protests from foreign powers whose nationals have interests in the oil fields. Modifications of these decrees served to relieve the situation slightly. In the consideration of the famous Art. 27 of the constitution of 1917 Congress showed a desire to adopt a moderate policy, but as no action was taken in the matter, it would seem that the more extreme ideas of Carranza were most likely to prevail. The murder of numerous foreigners, border difficulties, and the imprisonment of the U. S. consular agent Wm. O. Jenkins kept the menace of intervention vividly before the Government (see III, *International Relations*). Mexico withdrew her Minister from France, basing her action on the recognition by European powers of the Monroe Doctrine, which was repudiated by Carranza. Mexico was not invited to join the League of Nations, presumably on account of her attitude towards the foreign investments in the republic. In protest against statements regarding the recent course of the Mexican Government, the representatives of the country in the Pan-American Commercial Conference were withdrawn.

The high cost of living was felt in Mexico as elsewhere, and labor was restless. The formulated demands of labor included higher wages, an eight-hour day, and an annual vacation of one month. The Presidential campaign of 1920 was discussed. Carranza announced that he would not be a candidate and urged that the campaign be delayed, pending the solution of pressing problems. The principal

candidates mentioned were Gen. Alvaro Obregon, Pablo González, Gen. Salvador Alvarado, and Ignacio Bonillas, the Ambassador to the United States. A law of Aug. 30 established a claims commission to adjust damages arising from revolution since 1910.

Nicaragua.—Emilio Chamorro, whose term expires in 1920, occupied the Presidency in 1919. Although Nicaragua was free from internal political disturbances such as affected her neighbors, she became involved in the troubles of Honduras (*q. v.*) by allowing troops to gather on the border to invade the latter country. After a warning from the United States she refrained from further offense to the neighboring republics. An important law of Feb. 21 provides for judges of agriculture and labor who shall hear cases regarding agriculture, commerce, livestock, domestic service, labor contracts, and related subjects. Another law in effect from Jan. 1, 1920, requires that all diplomatic representation except that of the Vatican must be by officials resident in the republic. Special attention was given to primary education, the schools being greatly increased during the year.

Panama.—President Ciro L. Urriola, who is filling out the unexpired term of Ramon Valdez (d. 1918), administered the affairs of the country during 1919. Amendments to the constitution which were published on Dec. 26, 1918, provided for the abolition of the death penalty, that any person may exercise any honest calling or occupation, that the election of President shall be by direct vote, and that election of deputies shall be held every four years after 1924. Additions were made to the Code of Public Instruction, providing that primary education be made compulsory between the ages of seven and 15 years, that technical instructors may be hired abroad, and that no instructor shall be removed for political ideas (March 10). A law concerning concessions for exploration and exploitation of minerals (Jan. 20), one regulating the manufacture and sale of liquors, and another placing certain restrictions on high officials were also passed. The economic situation was bad, largely because the resources of the country have never been developed. The

people depended too much on labor on the Panama Canal, and upon its completion the laborers suffered many hardships. The Government undertook measures to relieve this situation. In order to pay the deficits of the Treasury a loan of 100,000,000 balboas was authorized.

Paraguay.—President Manuel Franco, whose able administration began in 1916, died on June 5. Vice-President José Montero assumed the office of chief executive to fill out the term. A decree was issued (February) establishing new and more equitable land taxes. Upon the invitation of the Allied powers the Paraguayan Senate gave its adhesion to the League of Nations (November). A general arbitration treaty and a coastwise shipping convention with Uruguay went into effect.

Peru.—President José Pardo, whose term would have expired on Aug. 18, controlled the administration for the first six months of the year. Cabinet reorganizations took place in March and in April over questions connected with the approaching Presidential elections. With slight disturbances the elections took place on May 25-7. There were six candidates in the field, the principal ones being Antero Aspíllaga, the Government nominee, and Gen. Augusto Leguía, ex-President, who represented two wings of the Civilista party. The suppression of the Leguista newspapers and the ensuing constitutional conflict respecting the jurisdictions of the executive and judicial departments convinced the followers of Leguía that it was the purpose of Pardo to establish a dictatorship, to set aside the elections and secure the seating of a candidate favorable to his views. For these reasons the Leguistas executed a bloodless military *coup d'état* on July 4 and ousted Pardo and his supporters. Pardo and other leaders were exiled and Leguía assumed control of the administration as *de facto* President. He organized a Cabinet and announced his programme of constitutional reform. He found it necessary to reorganize the Cabinet in August. A new election was held on Aug. 24. Leguía received an overwhelming majority for President, a new legislative body was chosen, and

III. FOREIGN HISTORY

the programme of Leguía was approved. Congress assembled on Sept. 24 and passed laws legalizing the existing *régime* as well as all acts necessary for the overthrow of the old. Nineteen amendments to the constitution were put into force, among which were the extension of the Presidential term to five years, complete renewal of the legislative power coincident with the change of the executive, and establishment of three regional legislatures to deal with local matters, subject to the general Congress. There were political disturbances with numerous arrests and a mob demonstration in favor of Leguía before the Palace (Sept. 9-10). Leguía was formally inaugurated for five years on Oct. 12 and thereafter completely controlled the situation. The regional legislatures were installed on Nov. 1. The new *régime* was recognized by the United States and other powers.

The labor situation in Peru was most serious. Many strikes occurred, including railway laborers, miners, and printers. In addition, there were two general strikes at Lima and Callao in January and May, and a third was attempted but failed in October. These strikes were accompanied by rioting, looting and destruction of property, and the loss of many lives, when the Government intervened to quell the disturbances. The causes of the troubles were the general unrest of labor, the high cost of living, Bolshevism, and agitation by foreigners. Some of the strikes were settled by increases in wages. Efforts for the solution of the labor troubles by the Government included a decree fixing an eight-hour day without wage reduction (January) and decrees regulating immigration so as to keep out foreign agitators and propagandists and providing for the deportation of undesirables (June). Compulsory arbitration was provided for by constitutional amendment in October. To remedy the high cost of living the Government issued many decrees seeking to cheapen foodstuffs and fixing prices thereon. In September a Government Bureau of Supplies was created to lessen the cost of living. A law of January made important changes in the penal code.

By executive decree there were established a new guano company (January), a Peruvian Railway Construction Co. (February), and a Naval Training School (April). A decree of June 21 related to claims for damages suffered in the May strikes.

The relations of Peru and Chile (*q. v.*) were strained over the Tacna-Arica question. Peru desired that the dispute should be referred to the Peace Conference at Versailles but this suggestion was opposed by Chile. Peru claimed that Chile was forcing all Peruvians to leave the disputed regions so that when a plebiscite should be taken there would be no Peruvians to vote. Peru carried on propaganda in favor of her side of the case by directing notes to her diplomatic representatives abroad. Peru was suspicious of the attitude of Bolivia, and the publication of the treaty between that country and Chile and the announcement that Chile expected to cede a port to Bolivia served further to arouse the animosity of Peru. Although Peruvian consuls were withdrawn from Chile, the two countries did not come to an open break.

Salvador.—In the Presidential election (Jan. 12-14) President Carlos Meléndez was reelected and continued his administration. The inauguration for the term 1919-23 took place on March 1. The inaugural address emphasized friendly relations with the American republics. The election of justices of the Supreme and District courts was held on March 12. Steps were taken for the establishment of a gold standard of coinage, among which was the appointment by the President of a commission to evaluate the present currency (July). A law was enacted providing measures for the eradication of illiteracy. An active campaign against alcoholism was undertaken by the Superior Council of Health. With a view to improving the conditions of labor a federation of working men's societies was formed.

Uruguay.—President Feliciano Vieira occupied the executive chair until March 1, when he was succeeded for the term 1919-23 by Baltasar Brum. A new constitution which went into effect on inauguration day supplants the constitution of 1829. It provides

III. FOREIGN HISTORY

for about the same balance of power between the three departments as the old instrument but with a clearer demarcation of the limits of each. The General Assembly is composed of two houses and has the power of interpreting the constitution. It also elects the justices of the Supreme Court. The President is elected by direct vote for four years. The most radical change from American practice is the division of the executive power between the President and an Administrative Board which is to cooperate with him. This Board is composed of nine members elected by popular vote for a six-year term, one-third of its membership retiring every two years. In general, the President controls the affairs of the Departments of Interior, Foreign Relations, War, and Marine, while the Administrative Board directs the Departments of Finance, Public Instruction, and Public Works. Minority representation is assured by a system of plural voting. The President may not leave the republic for more than 48 hours without the consent of the Assembly.

President Brum organized his Cabinet with Juan Antonio Buero, Minister of Foreign Relations, at its head. An old-age pension law was promulgated (Feb. 1). A decree of March 26 prohibited high public officials from having any private interests in business which comes before the General Assembly. General obligatory arbitration treaties with Italy and Great Britain were ratified, and a boundary treaty with Brazil was signed; also, a convention regard-

ing traveling salesmen was concluded with the United States (Aug. 2). The Peace of Versailles was approved by Uruguay in October. Although the high cost of living was felt in Uruguay, the country did not suffer very serious disturbances.

Venezuela.—The status of the administration in Venezuela remained as it has been since 1915. V. Marquez Bustillos continued as Provisional President, although it was generally recognized that his position was but a thin veil for the dictatorship of Juan Vicente Gomez, President-elect and commander-in-chief of the army. An attempt was made to overthrow this régime by revolutionists who invaded the country from Colombia, but this army was quickly defeated by the Government forces (May). The Government took occasion to show its pro-German tendencies, especially in connection with a parade organized in honor of Belgium in which the Allied flags were carried. At the instigation of the Government this parade was broken up by the police. Congress met in regular session in April. It passed a new immigration law (June) and an alien law (September). This alien law provided that foreigners should not mix in the affairs of Venezuela or have anything to do with politics. They should, however, be subject to the same laws as citizens except as regards military duty. A convention regarding the exchange of diplomatic correspondence was signed with Colombia and one relating to traveling salesmen was entered into with the United States (July).

CANADA

ERNEST H. GODFREY

Canada and the Peace Treaties.—On Nov. 8, 1918, the Prime Minister, Sir Robert Borden, with his colleagues in the Ministry, Sir George Foster, C. J. Doherty, and A. L. Sifton, left Ottawa to attend the peace deliberations, and upon their arrival in England the status of the Overseas Dominions at the forthcoming Peace Conference came under consideration. Eventually a proposal by Sir Robert Borden was adopted to the effect that each of these Dominions should have a distinctive representation similar to

that accorded to the smaller Allied powers, and that in addition the British representation of five delegates should be selected from day to day from a panel made up of the representatives of the United Kingdom and the Dominions. This panel system gave to the Dominions especially effective representation. At plenary sessions there were sometimes three Canadian plenipotentiaries, two as representatives of Canada and one representing the Empire. Another proposal of Sir Robert Borden's which

III. FOREIGN HISTORY

was accepted was that the assent of the King as High Contracting Party should, in respect of the Dominions, be signified by the signature of the Dominion plenipotentiaries. At the Peace Conference, where the Dominions enjoyed the same status as that of the minor powers, their representatives maintained that the Dominions should be similarly recognized in the international relationships contemplated by the League of Nations. The League of Nations Commission at first hesitated to concede the point but finally did so, and in the final draft of the Peace Treaty with Germany the status of the Dominions as to membership and representation in the Assembly and Council was fully recognized. (See also III, *International Relations*.)

A third session of the 13th Parliament of Canada was held from Sept. 1 to Nov. 10 for the purpose of considering the treaties of peace between the Allied and enemy powers. A resolution approving the Treaty of Peace with Germany was adopted after the defeat by 102 votes to 70 of an amendment by Mr. Fielding to the effect that in giving its approval the House in no way assented to the impairment of the existing autonomous authority of the Dominion, but declared that the question of what part, if any, the forces of Canada should take in any war was one to be determined by the people of Canada through their representatives. The treaty with Austria was approved without discussion.

Visit of the Prince of Wales.—An event of outstanding importance during the year was the official visit to Newfoundland, Canada, and the United States of Edward, Prince of Wales. Landing at St. John, N. B., on Aug. 15, His Royal Highness traversed the Dominion from coast to coast, mixing freely with all classes of the population and winning all hearts. The speeches he delivered at different centres exhibited a high degree of statesmanlike ability. Amongst the numerous ceremonies in which the Prince played the chief part during his stay in Canada was the laying of the foundation stone of the tower of the new Parliament Buildings at Ottawa on Sept. 1. After a brief visit to the United States, His Royal

Highness sailed from Halifax, N. S., Nov. 25, his tour having proved in every way an unqualified success.

Dominion Legislation.—The second session of the 13th Parliament extended from Feb. 20 to July 7. During this session 76 public general acts and 78 private acts were passed. Of the latter, 15 related to railways, one to a bridge company, five to insurance companies, two to trust companies, one to the incorporation of the Canadian Red Cross Society, and three to commercial corporations. The remaining 51 were divorce acts. The Air Board Act (Ch. 11) provides for the creation of an Air Board consisting of not less than five or more than seven members, with powers of control over aerodromes, air stations, aircraft, etc., and generally over aerial navigation in Canada and its territorial waters. Chapter 24 provides for the creation of a Department of Health for the preservation of the health and the promotion of the social welfare of the people of Canada; a Dominion Council of Health has been appointed under the Act, and the first meeting was held at Ottawa Oct. 7-9 (see also XXV, *Public Health*). Chapter 36 enacts a federal Bankruptcy Act aiming to give uniformity throughout the Dominion to all matters pertaining to insolvency, which comes into force by proclamation of the Governor in Council. The Act applies to all corporations except banks, railways, trust, and insurance companies, and to all persons except farmers and wage earners earning less than \$1,500 a year. The continued increase of prices and the high cost of living led to the passing of the Board of Commerce Act (Ch. 37) under which a Board of Commerce has been formed and clothed with wide powers of investigation, restraint, and punishment. It is charged with the administration of the Combines and Fair Prices Act, 1919 (Ch. 45), described as "an Act concerning the investigation and restraint of combines, monopolies, trusts, and mergers, and the withholding and enhancement of the price of commodities." The Naturalization Act (Ch. 38) amends and consolidates the acts relating to British nationality, naturalization, and aliens; it provides for the revo-

cation under conditions specified of certificates of naturalization previously granted and enacts that no certificates of naturalization shall, before 10 years after the expiration of the war, be granted to any subject of a country which at the time of the passing of the Act was at war with His Majesty. The Pensions Act (Ch. 43) provides for the appointment of three pension commissioners and a chairman and for considerable increases in the scale of war pensions previously in force. The Canada Highways Act (Ch. 54) is designed to encourage the improvement and construction of highways throughout Canada; it grants to the provinces \$20,000,000 for a period of five years from April 1, 1919, as follows: \$80,000 annually to each province, the remainder of the sums granted to be in proportion to population and to be in the proportion of 40 per cent. of the actual cost of any highway. The Soldier Settlement Act (Ch. 71) aims at assisting returned soldiers to settle on the land; under the Act loans may be made up to \$7,500 for the purchase of land, live stock, and implements and the erection of farm buildings. Chapter 73 appropriates the sum of \$10,000,000 for 10 years beginning March 31, 1920, in amounts increasing from \$700,000 to \$1,100,000 annually, to be paid to the provinces for the promotion of technical education, the payments being contingent upon equal amounts for the same purpose being expended by the provinces. Other measures passed during this session include a large number of amendments to existing statutes. Among these may be mentioned Ch. 60, which increases the permanent force of the militia from a maximum of 5,000 to 10,000 men and provides for rates of pay to be fixed by orders-in-council instead of by statute. A sum of \$25,000,000 was appropriated for a housing scheme resulting from the Interprovincial Conference of 1918 (see also VI, *Housing*).

Taxation.—By Ch. 55 increases were made in the taxes payable under the Income War Tax Act, 1917, and the Business Profits War Tax Act, 1916, was also amended. The Customs Tariff Amendment Act (Ch. 47) provided for the entire repeal of the

British Preferential Tariff rate of an extra five per cent. *ad valorem* over pre-war tariff rates and for a partial repeal of the intermediate and general tariff rate of an extra 7½ per cent. *ad valorem* imposed under the Customs Tariff Revenue Act, 1915, so that the latter no longer applies to the following classes: foodstuffs, linen and cotton clothing, woollen clothing, boots and shoes, fur caps and fur clothing, hats, caps, hoods and bonnets, gloves, mitts, collars and cuffs, hides, skins, leather, harness and saddlery, agricultural implements, petroleum oils, mining machinery, and bituminous coal. Other provisions were as follows: free importation into Canada of wheat, wheat flour, and potatoes from countries which do not impose a customs duty on such articles grown or produced in Canada; alteration in the rates on soda ash from five per cent. under the British Preferential Tariff and 7½ per cent. under the general tariff to one-fifth of a cent a pound under the British Preferential Tariff and three-quarters of a cent a pound under the general tariff; reduction of five cents per pound in the British Preferential, intermediate, and general tariff rates on roasted or ground coffee and three cents per pound under the British Preferential Tariff on British-grown teas; total reduction, including the 7½ per cent. war duty, under the general tariff from 27½ per cent. to 15 per cent. on cultivators, harrows, hoes, rakes, seeddrills, manure spreaders, and weeders and complete parts thereof, and from 27½ to 17½ per cent. on ploughs and complete parts thereof, windmills and complete parts thereof, portable engines and traction engines for farm purposes, horsepower and threshing-machine separators and appliances therefor. On hay loaders, potato diggers, fodder or feed cutters, grain crushers, and other agricultural implements provision was made for a total reduction to 20 per cent., and a similar reduction on farm wagons. The war customs duty on cement has been repealed and the general tariff rate reduced to eight cents per 100 lb.

National Acquisition and Development of Railways.—On March 31, 1918, the total mileage of the

III. FOREIGN HISTORY

Canadian Government Railways was 5,150 miles. In pursuance of Dominion Acts of Parliament (Ch. 10, 1913, Ch. 20, 1914, Ch. 24, 1917) and of an agreement dated Oct. 1, 1917, entered into with Mackenzie, Mann & Co., Ltd., and the Canadian Bank of Commerce, the Dominion Government during 1918 became beneficial owner of the entire capital stock of the Canadian Northern Railway Co., with the exception of five shares. The control of the Company thus passed to the Dominion Government, and a new board of directors was appointed in September, 1918. By order-in-council of Nov. 20, 1918, it was declared that the Board of Directors of the Canadian Northern Railway Co. should be a Board of Management of the Canadian Government Railways. By order-in-council of Dec. 20, 1918, the use was authorized of the descriptive and collective title "Canadian National Railways," as representing both systems, the corporate entity in each case being preserved. By Ch. 13 of the Statutes of 1919 provision was made for the incorporation of the Canadian National Railways Co. and for the operation thereby of the railways comprised in the Canadian Northern Railway system, together with the Canadian Government Railways and any other railways subsequently acquired. The Act was not immediately brought into force, however, and the Government-owned and controlled lines are still being operated under the authority above referred to. The total mileage of the Canadian Northern Railway when taken over by the Government was 9,566 miles. The route of the new Hudson Bay Railway lies between The Pas, Manitoba, where connection is made with the Canadian Northern Railway, and Port Nelson on the Hudson Bay, a distance of 424 miles. The entire line has now been graded and the track laid from The Pas north to the second crossing of the Nelson River at Kettle Rapids—330 miles. This line is comprised within the Canadian Government Railways.

The Quebec Bridge built by the Dominion Government to replace the structure which fell during erection in 1907 was opened for traffic in October, 1917 (*A. Y. B.*, 1917, pp. 90,

540), although not entirely completed until August, 1918. It was officially opened by the Prince of Wales on Aug. 22, 1919. The bridge forms a connecting link in the Canadian National Railways system. Early in 1918 the Dominion Government placed orders with Canadian shipbuilding firms for 45 steamships of a total deadweight tonnage of 263,950 tons. These are to be operated by the Canadian Government Merchant Marine, Ltd., the directors being members of the directorate of the Canadian Northern Railway. With the boats so far delivered services have been established between Montreal and St. Johns, Newfoundland, Cuba, the West Indies, South America, and various United Kingdom ports. These services will continue from Halifax or St. John during the winter months. Cargoes have been carried to French ports and from Vancouver to United Kingdom ports *via* the Panama Canal, and a service from Vancouver to Australia is to be established.

Under orders-in-council dated March 7 and 13, 1919, the Minister of Railways and Canals of the Dominion Government was appointed Government receiver of the Grand Trunk Pacific Railway system as a consequence of the inability of the Grand Trunk Pacific Railway Co. to continue in operation. These orders were ratified and confirmed by Act of Parliament of June 6 (Ch. 22), and this railway is now being operated accordingly. For a considerable time negotiations have been proceeding for the acquisition by the Dominion Government of the Grand Trunk Railway system, and an agreement having been arrived at, a bill to give effect to it was submitted to Parliament during the third or special session which ended on Nov. 10. After considerable debate the bill was enacted, and the Grand Trunk system will therefore pass under national administration. The practical effect of these measures is the nationalization of all Canadian railway systems with the exception of that of the Canadian Pacific.

At the special session, in addition to the legislation respecting the Grand Trunk Railway, amending acts were passed on many subjects, the

most important of which related to the Civil Service. The Civil Service Amendment Act, 1919, is the latest of a series of measures designed to remove the Civil Service of Canada from political patronage and gives statutory authority to a new classification of the Service.

Soldiers' Pensions.—During this session also a plea was made for further financial aid to returned soldiers. The question was referred to a Special Parliamentary Committee which reported that, having fully discussed and considered the financial position of Canada, including the further large sums that must be borrowed to carry on the work to which the country was committed, it could not recommend to Parliament any proposal to provide for a further general distribution of grants or gratuities either in cash or credits. The report stated that the total expenditure for pensions and the various forms of re-establishment up to March 31, 1920, would amount approximately to \$314,568,726, including pensions, \$53,536,498; gratuities, \$153,686,558; dependents' transportation fares, \$1,916,578; Department of Soldiers' Civil Re-establishment, \$57,045,664; Soldier Settlement, \$48,228,103; and Labour Department, \$155,324.

Industrial Unrest and Labor Troubles.—As a consequence of the transition from war to peace and of the conditions created by the increased cost of living, Canada, in common with other countries, experienced during the year a period of acute industrial unrest, happily, however, marked by no great disturbance of public order. A greater number of strikes occurred in Canada during 1919 than in any previous year. Up to the end of October, the time losses in working days caused by strikes was 3,723,983, as compared with 763,341 in 1918 and 1,134,970 in 1917. Probably the most serious disturbance in the industrial history of Canada was the general strike which took place in Winnipeg, Man., from May 1 to June 26, and which was followed by general sympathetic strikes in Brandon, Calgary, Edmonton, Saskatoon, Regina, and Prince Albert. The strike in Winnipeg originated with the metal trades, the members of which ceased work on

May 1 after lengthy negotiations with their employers for various wage increases and a 44-hour week. The question of "collective bargaining" was also a keen point of contention, and according to the strike leaders it was the crux of the whole situation. For a time the public services in Winnipeg were almost completely paralyzed, the strike involving street railwaymen, elevator men, postal employees, bookkeepers, stenographers, railway employees, municipal employees, and others. A Citizen's Committee of One Thousand was formed to protect the interests of citizens as a whole and, in coöperation with the municipal, provincial, and Dominion authorities, to carry on the public services, maintain order, and endeavor to bring about a settlement of the strike. Towards the end of May processions, demonstrations, and rioting took place, resulting in casualties, including one death. On June 17, following the termination of mediation proceedings, a number of labor leaders were arrested on a charge of seditious conspiracy. On June 26 the sympathetic strike ceased, and a formal application for the appointment of a Provincial Royal Commission with wide powers of inquiry was granted. Within a few days there was a general return to work and the strike was settled.

On April 9 a Royal Commission of seven members was appointed by the Dominion Government to investigate and report upon industrial relations. The Commission presented, under date of June 28, two reports. A majority report signed by five members recommended legislation for an eight-hour day, a minimum wage, relief of unemployment through public works, the building of workers' houses, restoration of the fullest liberty of press and speech, industrial councils, collective bargaining, and the recognition of unions. An inquiry by experts was also suggested with regard to proportional representation and state insurance against unemployment, sickness, and old age. The minority report, signed by two members, stated that there was no serious unemployment in Canada and that the Whitley plan was not suitable for Canada. They expressed a preference for the

III. FOREIGN HISTORY

ACREAGE, PRODUCTION, AND VALUE OF FIELD CROPS, 1918-19 (In thousands)

	Acreage		Production		Value	
	1918	1919	1918 <i>Bushels</i>	1919 <i>Bushels</i>	1918	1919
Wheat.....	417	679	7,943	16,133	\$16,516	.....
Spring wheat.....	16,937	18,462	181,133	180,228	365,152	.....
All wheat.....	17,354	19,141	189,076	196,361	381,678	\$373,086
Oats.....	14,790	14,997	426,313	411,136	331,357	320,686
Barley.....	3,154	2,646	77,287	58,336	77,379	67,086
Rye.....	555	754	8,504	11,003	12,729	14,304
Peas.....	236	225	4,313	3,723	12,899	7,446
Beans.....	229	84	3,563	1,478	19,284	7,242
Buckwheat.....	548	445	11,376	11,311	18,018	16,967
Flax.....	1,068	1,093	6,055	6,767	18,951	25,376
Mixed grains.....	922	900	35,662	26,519	40,727	39,779
Corn for husking.....	250	264	14,205	12,691	24,903	15,864
Potatoes.....	735	821	104,346	131,952	102,235	124,707
Turnips, etc.....	325	315	122,700	105,185	52,252	52,366
			<i>Tons</i>	<i>Tons</i>		
Hay and clover.....	10,545	10,595	14,772	16,528	241,277	341,869
Fodder corn.....	502	512	4,788	4,722	29,439	32,141
Alfalfa.....	196	227	446	540	7,964	11,677
Sugar beets.....	18	25	180	202	1,845	2,192
Total.....	51,427	53,044	.....	.....	\$1,372,927	\$1,452,788

Colorado plan. They found no real poverty in the Dominion that was not taken care of by local authorities. A National Industrial Conference between Dominion and provincial Government representatives and representatives of employers and of labor was held in Ottawa during the week beginning Sept. 15.

Agriculture.—For the fourth successive year the season for grain in Canada was unfavorable. Owing to prolonged drought in Saskatchewan, where more than one-half of the wheat crop of Canada is grown, and in Alberta, the yield of the principal grains was again considerably below average. For wheat the average yield per acre for the whole of Canada was not more than 10¼ bush., as compared with 11 bush. in 1918 and with the average of 18¼ bush. for the ten years 1909-18. The total area under field crops was 53,042,644 acres, as compared with 51,427,190 acres in 1918. The accompanying table shows the areas, yields and values of field crops in 1919 as compared with 1918. Of these crops the highest areas on record are established for wheat, oats, rye, potatoes, hay and clover, and fodder corn. Beans have greatly receded from 1918, when they were overproduced to a considerable extent.

The following were the estimated numbers of live stock in Canada on

June 15, 1919, as compared with the same date in 1918:

	1918	1919
Horses.....	3,609,257	3,667,369
Milch cows.....	3,538,600	3,547,437
Other cattle.....	6,507,267	6,536,574
Total cattle...	10,045,867	10,084,011
Sheep.....	3,052,748	3,421,958
Swine.....	4,289,682	4,040,070

The values of farm live stock in 1918 were about \$1,326,766,000, as compared with \$1,102,261,000 in 1917. The average values per head for 1918 were: horses, \$127; milch cows, \$87; other cattle, \$61; total cattle, \$70; sheep, \$16; and swine, \$26. For horses, cattle, and sheep the numbers for 1919 constitute the highest on record. Sheep show a further very satisfactory increase since the annual decline in numbers was arrested in 1917. The 1919 total of 3,421,958 compares with 3,155,509, the number recorded in 1871 by the first census after Confederation. Swine show a decrease of 249,612 from 1918's record of 4,289,682. The wool clip of Canada in 1919 may be placed at about 20,000,000 lb. of the value of \$12,000,000.

The total production of creamery butter in 1918 was 93,266,876 lb. valued at \$41,845,164, as compared with 87,526,939 lb. valued at \$34,274,218 in

1917, and 82,564,130 lb. valued at \$26,966,355 in 1916. Factory cheese produced in 1918 was 174,881,957 lb. valued at \$39,457,358, as compared with 194,904,336 lb. valued at \$41,180,623 in 1917 and 192,968,597 lb. valued at \$35,512,622 in 1916. Ontario and Quebec together produced 97 per cent. of the total factory-made cheese in Canada. The output of condensed-milk factories show a large increase, the production being 41,195,604 lb. valued at \$5,740,898, as compared with 32,105,799 lb. valued at \$3,811,281, in 1917. Other products of factories in 1918 included 891,543 lb. of whey butter valued at \$354,675, and 243,763 lb. of casein valued at \$40,854, the total production being from Ontario factories.

Trade, Revenue, and Finance.—For the year ended March 31, 1919, the value of the aggregate external trade of Canada was \$2,185,194,620, as compared with \$2,548,713,538 in 1917-18 and \$2,024,567,406 in 1916-17. As compared with 1917-18, the decrease is \$363,518,918, or 14 per cent. In 1918-19 the value of Canadian trade with the United States was \$1,224,616,313, as compared with \$1,233,397,045 in 1917-18; and with the United Kingdom \$633,874,234, as compared with \$942,397,682.

For the fiscal year ended March 31, 1919, the revenue on Consolidated Fund account was again the highest on record, reaching \$312,946,747, as compared with \$260,778,953 in 1918. The expenditure for the year 1918-19 was \$232,731,283, leaving a surplus for application to demobilization and other expenses arising out of the war of \$80,215,464. On March 31, 1919, the net public debt of Canada stood at \$1,574,531,032, as compared with \$1,

191,884,062 in 1918. On Oct. 31 the debt had increased to \$1,784,876,808, not including the proceeds of the Victory Loan referred to below.

Canada's sixth war loan, known as the third Victory Loan, was issued on Oct. 27, in the form of \$300,000,000 5½ per cent. gold bonds, the issue price being 100 and accrued interest. The bonds are in two maturities, due, respectively, on Nov. 1, 1924, and Nov. 7, 1934, and the interest is not exempt from income tax as in the case of previous loans. After a vigorous publicity campaign the subscriptions closed on Nov. 15, and approximately the sum of \$700,000,000 was subscribed. Altogether a sum of about \$2,087,000,000 has been raised in Canada by war loans since 1915. This total is very significant when it is considered that previous to the war public loans were placed almost entirely in Great Britain.

Political Situation.—During the year general provincial elections were held in Prince Edward Island, Quebec, and Ontario. In Prince Edward Island (July 24) a Liberal replaced a Conservative administration; in Quebec (June 23) the existing Liberal Government was retained. In Ontario (Oct. 20) the Conservative administration was overthrown, and a Government was formed consisting of members of the United Farmers Organization supported by labor members. The death of Sir Wilfrid Laurier, on Feb. 17, removed from Parliamentary life the leader of the Liberal Opposition in the Dominion Parliament and one of Canada's most eminent statesmen. At a Liberal convention, held at Ottawa on Aug. 5-7, W. L. Mackenzie King was elected as his successor.

THE BRITISH EMPIRE

ANNIE G. PORRITT

THE UNITED KINGDOM

The Administration.—The year 1919 opened auspiciously for Lloyd-George and his Government. The results of the election announced on Dec. 28, 1918, had given the Coalition of Unionists, Liberals, and National Democrats the huge majority of 273 over all other parties combined

(A. Y. B., 1918, p. 140). The victory was largely a personal one for the Premier, as every candidate who supported him, irrespective of the party to which he belonged, was given a coupon which pledged him to the electors as a supporter of Lloyd-George.

The new administration which was formed in January included almost all

III. FOREIGN HISTORY

the men who had been of the Ministry in 1918, but there was a very general rearrangement of offices. Of the 77 names included in the list of the new administration, only 10 were new, and most of these 10 were under-secretaries who had already held some official office. The plan adopted during the war of having a War Cabinet of five members was continued, and during the first half of the year Lloyd-George continued to absent himself almost entirely from the House of Commons. This absence was inevitable during the Peace Conference, when the Premier was in France, but as time went on it became increasingly objectionable both to the House itself and to the people generally. There was another overhauling of the Cabinet in October, and on Oct. 27 Lloyd-George announced the restoration of the constitutional system of government which had been suspended as a war measure in December, 1916 (*A. Y. B.*, 1916, p. 122). When the war broke out in 1914, Mr. Asquith had had a cabinet of 20 members, and the same number was included in the restored Cabinet of October, 1919. The members of the new Cabinet were:

Prime Minister and First Lord of the Treasury—David Lloyd-George.

Lord Privy Seal—A. Bonar Law.

Lord President of the Council—Arthur J. Balfour.

Chancellor of the Exchequer—Austen Chamberlain.

Without portfolio—G. N. Barnes.

Chief Secretary for Ireland—J. I. Macpherson.

Lord Chancellor—Lord Birkenhead (F. E. Smith).

Home Secretary—E. Shortt.

Secretary for Foreign Affairs—Earl Curzon.

Secretary for the Colonies—Viscount Milner.

Secretary for War and Air—Winston Churchill.

Secretary for India—E. S. Montagu.

First Lord of the Admiralty—Walter Long.

Secretary for Scotland—R. Munro.

President of the Board of Trade—Sir Auckland Geddes.

President of the Ministry of Health—Dr. C. Addison.

President of the Ministry of Agriculture—Lord Lee.

President of the Board of Education—H. A. L. Fisher.

Minister of Labor—Sir R. S. Horne.

Minister of Transport—Sir Eric Geddes.

Two new ministries appear in this list: the Ministry of Health, which is

the transformed Local Government Board, relieved of some of its former functions and given more power over all matters connected with the health of the nation; and the Ministry of Transport, which has the oversight of roads, railroads, canals and other waterways. On the other hand, the Postmaster-General, the Chancellor of the Duchy of Lancaster, the Attorney-General, and the First Commissioner of Works were not invited to join the Cabinet. The Ministry of Blockade, which held an important position during the war, was abolished in the summer of 1919. The Ministry of Munitions became the Ministry of Supply, and the Ministry of National Service, which had had charge of the work of securing man power for the Army and the Navy, and man and woman power for the industries essential to the war, became the Ministry of National Service and Reconstruction, with the work of replacing men in industry and restoring peace conditions as its principal duties.

By-Elections.—By-elections during the year showed a considerable change of feeling in the electorate. The election of Dec. 14, 1918, had been carried on the cry that the man who had carried the war to a successful issue ought to be allowed to make the peace. The figures were therefore no criterion of the normal political convictions of the electors. The first by-election was in the West Derby division of Liverpool, caused by the sitting member, F. E. Smith, accepting the position of Lord Chancellor and thereby vacating his seat. The Coalition candidate was elected but the majority was cut down from 6,004 to 1,392. Before the end of April there were three more by-elections—West Leyton, Central Hull, and Central Aberdeen. In all three constituencies Liberals were elected, and the Coalition majority of 22,043 given at the general election to the four members was converted into a minority of 5,212. In East Swansea in July a Coalition Liberal won the seat against a Labor candidate; but the Labor vote had shown a steady increase from the beginning of the year and at Bothwell on July 14 a Labor candidate was elected to succeed a Coalition Unionist by a majority of over 7,000 votes. Labor again

III. FOREIGN HISTORY

scored at Widnes in September, when Arthur Henderson, who had been without a seat since the general election, gained a victory in a constituency which throughout its history had hitherto returned only Tory members. The Coalition candidate was saved at Pontefract owing to irritation arising out of the railway strike (see *infra*) which worked against the Labor candidate. In October in the Rusholme division of Manchester a Coalition candidate was again returned. This was, however, a four-cornered fight, and the Liberal and Labor candidates polled together more votes than the other two candidates combined, the Labor vote showing an increase of over 3,000 over the vote polled by the Labor candidate at the general election. In by-elections in November and December the Coalition held, by greatly reduced majorities, the seats of Thanet, St. Albans, South Croydon, and Plymouth. At Plymouth Lady Astor was elected, the first woman to take her seat in the House of Commons. In all these elections the Labor poll was enormously increased as compared with December, 1919, and Labor candidates won at Chesterle-Street and Spon Valley.

Parliament.—In addition to the defeats in the constituencies the Coalition Government had to face a growing spirit of insubordination among its own followers in Parliament. When Parliament assembled in February, the Labor Party claimed the right to be considered the official Opposition. It had then 63 members as compared with 34, the number of independent Liberals. The Sinn Feiners had a larger representation, 73 members, but Sinn Fein refused to have anything to do with the British Parliament and these members did not take their seats. The Coalition forces numbered 472, and there were in addition 51 non-official Coalition members (Unionists who had not accepted the Lloyd-George coupon) who could usually be counted upon to support the Government. It was, however, impossible to hold together the somewhat incongruous elements which formed the Coalition forces. Twice the Government was defeated in the House of Commons. The first defeat came through the Labor members, on

a bill for the removal of sex disqualifications introduced by the Labor Party. The bill was opposed by the Government, chiefly on the ground that it made a sweeping change in the franchise whereby about 7,000,000 women would be added to the electorate. If such a change were made, it would entail an immediate general election, which was undesirable so early in the life of the Parliament. In spite of this opposition the third reading of the bill was carried in the House of Commons. The Government secured the rejection of the bill in the House of Lords and promised the introduction of a Government bill which should remove all civil disqualifications, leaving the question of the franchise to be dealt with later. The second defeat was over the Aliens' Restriction bill, and this time the defeat came from the Government's own following. It was in the form of an amendment which would have deprived French air pilots of rights with regard to British pilotage certificates which had been assured to them by a convention concluded before the war. This defeat the Government was able to retrieve by a remodelling of the bill and a vote of confidence in the House of Commons, but at the close of the year there was a very general feeling that the Government could not look for a long life and that there would be a general election in 1920.

Finance.—The Chancellor of the Exchequer, Austen Chamberlain, laid the first peace budget before the House of Commons on April 30. In spite of the fact that fighting had come to an end nearly six months before, the expenditures for which the Chancellor had to provide were by no means normal. The estimates for 1918-19 were for £2,972,000,000. The actual expenditures fell short of the estimates by £393,000,000, due to the fact that fighting ceased over four months before the end of the fiscal year. During the last year of the war, therefore, the actual expenditures were £2,579,000,000. For 1919-20 Mr. Chamberlain estimated the expenditures at £1,434,910,000 and the revenue at £1,159,650,000. In normal times it is the policy of the British Government not only to meet all Gov-

ernment charges out of taxation, but also to provide a sinking fund for the extinction of the National Debt. Mr. Chamberlain explained his failure to carry out this policy by stating that the country had by no means reached the level of normal expenditure. There was still an overlapping of war charges, and expenditures were swollen by demands arising out of demobilization, by the condition of the railways, and by expenses connected with coal production. On the other hand, revenues were also swollen by sums arising out of the conclusion of the war and the realization of war assets. How greatly both receipts and expenditures were swollen may be realized when it is recalled that the estimated expenditure for 1914-15, the last normal pre-war estimate, amounted to £198,000,000, and that the pre-war National Debt could have been paid off almost twice over out of the estimated receipts for 1919-20.

At the opening of the war in 1914 the British National Debt amounted to approximately £645,000,000. On March 31, 1919, it stood at £7,435,000,000. The internal debt amounted to £6,085,000,000 of this sum, and the money owed abroad to £1,350,000,000. The external debt, Mr. Chamberlain explained, was owed chiefly to the United States, and its real amount would vary with the rate of exchange at the time of repayment. In addition to the funded debt, there was also a large floating debt. There were ways and means advances maturing in 1919-20 of £455,000,000, Exchequer bonds of £245,000,000, and a foreign debt of £96,000,000, making, with the Treasury bills, a total floating debt amounting to £1,412,000,000.

There was a new bond issue, the Victory Loan, in July, and on Oct. 28 the Chancellor published a revised statement of account. The National Debt was then estimated at £8,075,000,000. This figure represents the face value of the debt. The face value of the Funding Loan and Victory bonds was approximately £767,534,000. The bonds carry four per cent. interest and were issued at a discount, making the face value of the debt greater by £140,000,000 than it would have been had they been issued at par. Against this debt Mr. Chamber-

lain estimated that there were obligations of the Allies and of the Dominions and India amounting to £1,961,000,000; assets from the war (surplus stores, vote of credit, and repayable advances) amounting to £425,000,000; and arrears of excess-profits duty amounting to £240,000,000, making a total of £2,626,000,000, thus reducing the net amount of the national indebtedness to £5,449,000,000.

By August it was clear that Mr. Chamberlain had underestimated the cost of government for the fiscal year and that the expenditures would be at least £100,000,000 more than the estimates. This statement was followed by feverish efforts at economy, but not much result attended the efforts to curtail expenditures, and on Oct. 28 Mr. Chamberlain issued a revised statement of revenues and expenditures in which it was made clear that the deficit would be much greater than had been anticipated even in August. According to the new figures the expenditures for 1919-20 would total £1,642,295,000 and the receipts £1,168,650,000, leaving a deficit for the year of £473,645,000, being almost £200,000,000 more than had been anticipated in April. The greatest increase in expenditure was on the Army, which will cost for the financial year £405,000,000, £118,000,000 more than had been estimated in the budget.

No new taxes were suggested in October to meet this great deficit. Very little in the way of increased taxation had been imposed by the budget. On the other hand, there had been decreases and abatements in taxation. The land-values duty, imposed by the famous Lloyd-George budget of 1909, had, Mr. Chamberlain announced, become unworkable, due partly to legal decisions and partly to the nature of the tax, and no account was taken of possible revenue from this source. The luxuries tax had also been found unworkable and was abandoned. The excess-profits tax was reduced from 80 per cent. to 40 per cent., and it was recommended that some method be found by which the profits of industry might contribute more fairly to the revenue than was possible under this duty. There was no change in the rates of the income tax, but the abatements for wife

and children were raised. The abatement for wife was made £50 instead of £25, and £40 of income was allowed untaxed for the first child with £25 for each succeeding child, so long as the children were under the age of 16 or were continuing their education. A new form of taxation, insignificant in amount but extremely important in principle, was introduced under the guise of tariff preferences to the British possessions. In theory the preference was to be one-third off for manufactured articles and one-sixth off for certain other products. This would entail the laying of taxes on imports which are not now included in the British fiscal system. For the time being, therefore, the preference was limited to a concession of one-sixth of the duty on cocoa, coffee, chicory, tea, sugar, molasses, tobacco, wine and spirits when these articles were imported from any British possession, and a corresponding reduction in the excise duties on any of these articles that were produced at home. The only important increase of taxes was in the schedules of the death duties on estates over £15,000, on which the duty had previously been from five to 20 per cent. These rates were increased on a graduated scale beginning with six per cent. on estates of £15,000 to £20,000 and rising to 40 per cent. on estates of £2,000,000 or more.

Legislation.—Three measures of importance became law in December, namely, the Government of India Act; the Enabling Act, giving new powers of self-determination to the Established Church of England, and the Industrial Courts Act, which set up courts for the investigation of labor disputes. An effort was made to deal with the grievance of rising prices by the passage of the Profiteering Act, which came into force on Sept. 11. Many prosecutions were undertaken during the ensuing weeks, but great difficulty was experienced in determining what was a fair price, and there were many complaints on the part of traders of the uncertain position in which the Act placed them.

The Education Act of 1918 (*A. Y. B.*, 1918, p. 139) was put into force by Dr. Fisher, the Minister of Edu-

cation, on Aug. 1. A new set of regulations was promulgated by the Board of Education, and there was much complaint on the part of the advocates of unsectarian education that these regulations unduly favored the sectarian schools and thus violated the truce agreed upon by the Non-comformists in order to allow the new legislation of 1918 to have a fair start. Under the new regulations the governing body of a secondary school or set of secondary schools may belong to one particular religious denomination, and the majority of such governing body need not be representative, but may be appointed by persons belonging to some particular religious denomination. Schools so governed may receive grants of public money without regard to the old principle that state grants must be accompanied by public management.

Labor.—Labor disputes and labor troubles formed the predominate feature of British life during 1919. At the opening of the year there was a threat of a strike on the British coalfields. The men, who were strongly unionized, were asking for a 30 per cent. increase in wages, a six-hour day, a more generous scheme of demobilization, full trade-union pay for unemployed miners, and the nationalization of the mines in order to bring about more equitable conditions in the coalfields and to eliminate profit-making in a great and vital industry. A strike vote was taken on Feb. 24, which stood 611,998 in favor of a strike to 104,997 opposed. The problem was at once taken in hand by the Government, which appointed a commission to enquire into the whole question for report not later than March 20, and the miners, who by this time were supported by the railwaymen and the transport workers, then postponed action and deferred the strike order.

The commission, which was headed by Justice Sankey as chairman, held its first meeting on March 4. The hearings were fully reported in the daily press, and much sympathy with the miners was aroused by the evidence concerning bad housing and living conditions on the coalfields. On March 20 three reports were made, one signed by the chairman and three

members who represented employers in general, the second signed by the three representatives of the mine owners, and the third signed by the six representatives of the miners and of labor in general. The first report recommended an increase of about 20 per cent. in wages and a decrease of hours to seven a day, and, although not recommending nationalization of the mines, stated that the present system had been shown to be thoroughly unsatisfactory. The second report recommended the seven-hour day and a smaller increase in wages. The third report insisted on the original demands of the miners with the exception of that concerning demobilization. The Government adopted Justice Sankey's report, and after some hesitation its terms were accepted by the miners, with the understanding that the shorter day was not to decrease wages and also that the Government would take up the question of nationalization after the commission had made its final report.

The final report was made on June 23. This time a majority report, signed by the chairman and the six labor members of the Commission, recommended the nationalization of the mines. Strong opposition at once sprang up, and on July 9 the Government announced that it was necessary to raise the price of coal six shillings a ton. This move was regarded by the labor men as a political manœuvre to frustrate the labor campaign for nationalization, especially as it was announced on the eve of the East Swansea election which was being contested by a Labor candidate on this issue. The miners contended that the price of coal was largely a matter of production and that the responsibility for lowered production rested with the management, which failed to provide equipment or means of transport. In the meantime there was delay in settling the new rates of piece work, and in Yorkshire 150,000 miners went on strike. The strike was badly timed and badly managed and its chief result was to alienate public sympathy from the miners.

A declaration of policy on nationalization was made by Lloyd-George on Aug. 18. The Government had al-

ready accepted the principle of national ownership of royalties and mineral rights, but the Premier distinctly stated that the "State should not purchase the business of the mine owners." He favored a scheme of amalgamation of collieries to be carried out under Government control, and he promised that the miners should have the opportunity to cooperate in shaping the general conditions of the industry "without interfering with the executive control of individual mines." This Government proposal was laid before the Trades Union Congress which met in Glasgow in September, and the Congress voted by 4,478,000 to 77,000 to cooperate with the Miners' Federation in compelling the Government to accept Justice Sankey's nationalization proposals. The Labor Party carried the proposal into the constituencies in their electioneering propaganda, and note must be taken of the fact that in the municipal elections of Nov. 1 there were many successes for Labor candidates. In 47 of the principal boroughs of England, whereas the total number of seats gained by the Conservatives and Liberals, respectively, were 17 and nine, Labor gained 154 new places and lost only two seats. Local considerations always affect municipal elections, but the general trend towards Labor was unmistakable.

Two strikes of outstanding importance among the hundreds of strikes that disturbed the country took place in the summer and autumn. One was the strike of the Liverpool police in June. This was accompanied by an outburst of crime and violence on the part of the unrestrained hooligan population. The other strike affected the whole country. It was the strike of railwaymen which began at midnight on Friday, Sept. 26, and ended on Sunday, Oct. 5. The strike was due to the long delay of the Government in settling the question of peace-time wage rates for the railway workers and to distrust on the part of the men, who feared that it was the intention of the Government to accept pre-war standards of living as the basis of the new wage arrangements. The strike ended in a compromise, the Government promising to resume ne-

gotiations and to bring them to a completion not later than Dec. 31, 1919; wage levels were to be continued at present rates to Sept. 30, 1920; and the minimum wage, with prices at not less than 110 per cent. higher than before the war, was set at 51s. a week. Both sides claimed a victory, but the labor men were satisfied that the Government had given way, both with regard to the continuance of present wages for a whole year and with regard to hastening the negotiations, and also with regard to the minimum wage of 51s. instead of the 40s. that had previously been offered by the Government.

The conciliation of labor and stimulation of production were recognized by the Government as the most immediate needs of the country. In February Lloyd-George convened a National Industrial Conference consisting of representatives of employers and of workers, to ascertain the causes of the labor unrest and to suggest remedies. This Conference resulted in the appointment of a committee consisting of 30 representatives of the employers and 30 of the employed. The Government appointed Sir Thomas Munro as independent chairman, and the delegations of employers' and trades-union representatives were headed, respectively, by Sir Allen Smith and Arthur Henderson. This committee made a unanimous interim report on April 4 in favor of a maximum 48-hour week and universal minimum wage rates, the frank acceptance of employers' organizations and trade unions in negotiations, and a wide plan of provision against unemployment. The Prime Minister had given a pledge that if the report were unanimous, it would be accepted by the Government, but there was much disappointment among the working people at the slow and grudging manner in which progress was made towards putting some of its suggestions into the form of law. The committee was continued, and efforts were made to set up a permanent National Industrial Council, but without definite result.

In fulfilment of a pledge made during the war, the Government in April introduced a bill to restore pre-war conditions in industry. The object of

the bill was to set up again the customs, restrictions, and trade practices that the trades unions had managed to secure from employers and which they voluntarily set aside to meet the new conditions during the war. The bill compelled an employer, after having been notified by a majority of his workers, to introduce, or permit the introduction of, into his establishment, such customs or restrictions and to continue them for one year. If the employer refused, the case could be referred to a munitions tribunal which could make orders and punish their neglect. The strongest opposition came from the women workers, who saw that under the bill they would again be excluded from many trades for which they had manifested their fitness. Lloyd-George assured the women that this was a trade bill and not a sex bill; but the women's fears were realized when the Society of Engineers on July 5 voted to refuse to admit women to the Society, on the grounds that the admission of women tended to reduce wages and that the engineering trades were not such that entry to them was conducive to a woman's best interests. Refusal of union membership meant, under the provisions of the bill, exclusion from all establishments which were manned by union labor.

Considerable progress was made in extending the plan of industrial councils on the model recommended in the "Whitley Report" of 1918. On Oct. 22 the Minister of Labor stated that the 50th Whitley council had been established. Forty-one of the 50 councils were in industries carried on by private employers and nine in various Government industrial establishments. The recommendation in the Whitley Report on which the councils are based reads:

That district councils, representative of the trade unions and of the employers' associations in the industry should be created, or developed out of existing machinery, for negotiation in the various trades. That works committees, representative of the managers and of the workers employed should be instituted in particular works to act in close coöperation with the district and national machinery.

The passage of the Industrial Courts bill was at once followed by the

appointment of members to constitute the Standing Industrial Court. Employers, labor unions, and women were represented. The president was Sir William J. Mackenzie, K.C., chairman of the interim committee of inquiry into industrial unrest.

Food and Prices.—During the early part of 1919 the food situation became much easier than it had been during the last two years of the war, and the control exercised by the Minister of Food was gradually removed. Rationing came to an end, and it was announced in Parliament on May 9 that the Ministry of Food would not be continued after the late fall. There were at once, many complaints of profiteering and of unreasonable increases in the prices of food and other necessities, increases which the Government made an effort to check through the operation of the Profiteering Act. By the end of the summer, however, after a poor harvest, it was perceived that the food shortage in the winter threatened to be as acute as it had been at the beginning of the year, and on Oct. 28 Bonar Law stated in the House of Commons that the Ministry of Food was to be continued. Control was reimposed on the more important articles of food, and it was found necessary to reintroduce the system of rationing.

Ireland.—The 73 Sinn Fein members of Parliament elected from the Irish constituencies in December, 1919, instead of taking their seats, organized a Parliament of their own in Ireland. The first session was opened in the Dublin Mansion House on Jan. 21. The proceedings were conducted in Gaelic. A roll was called of all the 107 Irish members, including Sir Edward Carson, leader of the Unionists. A declaration of independence was then read, and three members were chosen as delegates to lay the case of Ireland before the Peace Conference in Paris. On Feb. 4 Eamonn de Valera, who had been in prison since May, 1918, made his escape and resumed the leadership of the Irish separatist movement. The sittings of the Irish Parliament were continued through February and March and on April 5 de Valera was elected President of the Irish Republic.

of violence and crime in many parts of the country, and on April 7 it was announced that the Crimes Act, passed to confer extraordinary powers on the Irish executive in dealing with disturbances, was to be put in force. The special occasion for putting the Act in operation was a serious outbreak in Limerick. On April 9 the report of the Treasurer was read in the Irish Parliament. It showed receipts of £14,900 and expenditures of £13,084, of which over £800 was for election expenses. The need of more money thus confronted Sinn Fein, and it was proposed to issue an Irish loan for £1,000,000 of which one-half was to be collected at once. Of this £500,000 one-half was to be collected in Ireland and the other £250,000 abroad. The United States was looked to as the chief source of revenue for the Irish Republic.

An American delegation, consisting of Frank P. Walsh and E. F. Dunne, visited Ireland in May to report on conditions there. Facilities were allowed by the British authorities for these delegates to visit much of Ireland, but their report was largely based on hearsay evidence, "the statements of men and women of unimpeachable integrity," to quote their own words. On this evidence they charged the authorities with the commission of many atrocities. The first ten items of the 17 charges referred to conditions in the prisons, none of which had come under their own observation, and no specific cases are quoted in the document. Copies of the report were laid before President Wilson and Mr. Lloyd-George, and the report was printed in full in the British newspapers. On June 16 Mr. Macpherson, Chief Secretary for Ireland, issued a statement characterizing the report as an "outrageous and wanton travesty of the facts," the "gratuitous and partisan misstatements" of which were "so extravagant and unwarrantable as to make the document ridiculous." As regards the treatment of prisoners, it was stated that all political prisoners were permitted to wear their own clothes, to walk and talk together, and to buy their own meals from outside if they were not content with prison fare, privileges which had facilitated the es-

III. FOREIGN HISTORY

cape of many Sinn Fein prisoners from English prisons.

The British Government meanwhile seemed to be relying chiefly on coercion for the restoration of order in Ireland, and the advocates of force looked to the Lord Lieutenant, Viscount French, to put down disorder with a strong hand. Two special difficulties presented themselves. One was the intense hostility of the Irish to the police, culminating in frequent murders of police constables, and the other the antagonism that was shown to the Irish who had served in the war and the persecution that was visited on returned soldiers, including the wounded and disabled. A strict censorship was imposed on Irish newspapers and publications, the chief result of which was that the loyal newspapers were debarred from publishing such things as the report of the Irish-American delegates, while the Sinn Fein publications defied the censorship and published freely even the most seditious matter. It was rarely possible to bring offenders to justice. Even when a shooting was done in daylight with hundreds of people about, public opinion shielded the offenders, partly from distrust of the authorities and partly from fear of reprisals.

Among the suggestions for settlement of the Irish problem was a scheme for dominion Home Rule put forward by Sir Horace Plunkett. This would have given Ireland a government on the model of that of the self-governing dominions of Canada, Australia, and South Africa. The scheme was attacked by both the Left and the Right in Ireland. It was denounced by Sinn Fein as insufficient and as falling short of the complete independence which they claimed; it was refused by the Unionists, who insisted that Ulster should not be put under the government of the rest of Ireland. On July 12 Sir Edward Carson stated in an address to the Belfast Orangemen that his motto was "no surrender," that he would have nothing to do with any scheme of Dominion Home Rule, and that if any attempt were made to put the Home Rule Act into force, he would summon the Ulster Provisional Government and would move to repeal the Act. The

difficulties of the British Government, placed thus between two fires, were described in Parliament on July 21 by Lloyd-George in reply to an appeal for Ireland by Mr. Devlin. He reminded the House of the failure of the Irish Convention to reach any solution, a failure entirely due to the divisions among the Irish themselves. The difficulty lay in the fact that Ireland was not a nation and that the majority of Irishmen were not willing to grant to the minority the right that they themselves claimed as a minority of the United Kingdom. "If the Nationalists who desired self-government," continued Lloyd-George "would accept it for themselves, they could have it, but they could not force it upon Ulster."

Through the summer the futile efforts to effect conciliation by means of coercion were continued. Meetings were banned and rushed by the police and military when held in defiance of orders. Societies were "suppressed." In August a summer school for the study of Gaelic was raided. But prisoners refused to acknowledge the authority of the courts, and the murder of policemen and soldiers continued. Both Nationalists and Sinn Fein held demonstrations in Ulster in August, and the Nationalists showed that in spite of their poor showing in the general election of 1918, they were still a force to reckon with and that Ulster was by no means a unit for the policy outlined by Sir Edward Carson. Nevertheless, the Irish executive placed itself on the side of the new Ulster movement when on Aug. 20 Viscount French paraded in Dublin side by side with Sir Edward Carson.

The Sinn Fein Parliament continued its sittings undisturbed by the authorities until the middle of September. De Valera was meantime in the United States whither he had gone after his escape from jail. He had undertaken to raise there the \$1,250,000 authorized as the foreign portion of the Irish loan, but in August he wrote to the Irish Parliament for permission to increase the amount to \$25,000,000. The scheme for the utilization of the loan included £10,000 for the financing of a consular service, £10,000 for the encouragement of Irish fisheries, and appropriations for

afforestation and the encouragement of industry. The Irish Republic also assumed liability for the old Fenian bonds. It was stated from the British War Office in August that military expenditures in Ireland were then amounting to £900,000 a month.

As the ratification of the Peace Treaty drew near, the Irish question became more pressing, for the Home Rule bill would automatically come into force with the official ending of the war. Lord French, therefore, had recourse to more severe measures. Sinn Fein as an organization was proscribed, and efforts were made to suppress it. The Government also suppressed the *Dail Eirann*, the Sinn Fein Parliament. The Crimes Act was enforced in most of the counties of Ireland, and court-martial trials and the search for arms became general. The Irish retaliated by raids on the police and military to secure arms and by the shooting down of individual policemen.

It was announced on Oct. 8 that the British Cabinet had come to the conclusion that it would be necessary for them to prepare a settlement of the Irish question without waiting for the Irish to compose their own difficulties. A committee was formed to draw up a plan, and the result of the deliberations was announced by Lloyd-George in the House of Commons on Dec. 22. In the meantime the task of the British Government had been made more difficult by the fact that an attempt had been made three days previously on the life of Lord French. The scheme of government outlined by the Premier provided for two parliaments, one for the North and one for the South, with a council to be elected by these parliaments to act as the connecting link. If the parliaments agreed they could later be fused into one national legislature. Until such union took place, the control over the post office, the higher judiciary, and customs and excise would be retained by the British Parliament. Taken as a whole, the scheme went further in granting power to the Irish over their own affairs than the Home Rule bill of 1914, but it fell short of satisfying the aspirations of the Sinn Fein. A tabulated list of outrages committed in the five months end-

ing Sept. 30 was issued from Dublin Castle on Oct. 12. It included 1,293 crimes, of which 14 were murders of police or military men and two murders of civilians, with 66 attempts at murder, 60 assaults, 478 raids for arms, and 55 incendiary fires. The other outrages included injury to property, firing into dwellings, threatening letters, etc.

The fact that Sinn Fein, the majority political party of Ireland, had been made illegal and its meetings forbidden did not make easier the task of the British Government in drawing up a scheme that would be acceptable to the Irish people. The chief result of the attempted "suppression" of Sinn Fein was apparently to drive many moderates over to the extreme party. Drilling among the Irish volunteers was general, and the year ended with Ireland more disturbed and discontented and with a situation more sinister and threatening than had faced the British authorities since the close of the eighteenth century.

THE OVERSEAS DOMINIONS ¹

India.—There was serious rioting in several parts of India in April, principally in the Punjab. The trouble arose over the announcement of the intention of the Government to put in force in certain districts the provisions of the Rowlatt Act which had been passed to check the German propaganda of the war period. An extremist society, known as the Satyagraha Sabha, in opposing these measures appointed April 6 as a day of humiliation, and passive resistance was preached as a method of preventing the Act from being put into force. The most serious trouble was at Amritza, where the Town Hall and two banks were burned and the telegraph office wrecked; three bank managers were killed, two being burned to death in the fire. Extreme severity was employed in quelling these disturbances. Full particulars were not made public in Great Britain until December, when much feeling was aroused over methods which were

¹ Except Canada, covered in a separate article, *supra*.

stigmatized as "frightfulness." In Bombay the mills were closed and serious disturbances were feared, but by the readiness and the restraint of the police the trouble was averted. Martial law was proclaimed in the Punjab, and many of the rioters were arrested, tried, and convicted. In the north of India there were many outbreaks of a revolutionary nature. The situation was greatly aggravated by the unrest and the distrust of the Mohammedans, who were disturbed over the treatment that Turkey received from the Peace Conference. The All-India Congress in a memorial to Lloyd-George urged the need for a change of policy. It deplored the excesses, which it attributed to the Rowlatt Act. It also complained of the attitude of European officials towards Indian aspirations and reform schemes, and referred to the Mohammedan apprehensions concerning the holy places.

The agitation in northern India was followed in May by an invasion from Afghanistan which compelled the sending of troops to the frontier and the exercise of greater vigilance in the prevention of revolutionary propaganda, as it was believed by the authorities that much of the seditious matter that was in circulation had a foreign origin. The Ameer's efforts to create a disturbance met with little success and on May 28 he sent a letter in which he asked for an honorable peace.

In the meantime E. S. Montagu, Secretary of State for India, and Lord Sinha, the Under-Secretary, were at work on a bill which should embody the recommendations of the report of 1918 (*A. Y. B.*, 1918, p. 146) drawn up by Mr. Montagu and Lord Chelmsford, the Viceroy and also the reports of two committees which had been appointed in November, 1918, and which reported in May. One of these committees, charged with the duty of framing the proposals for the new franchise, recommended residential and property qualifications which would admit to the franchise about 5,179,000 persons, about 2.34 per cent. of the population. The number of electors under the existing system was about 33,007, and of these 17,448 were

from the minority population—the Mohammedans. The other committee was concerned with the division of functions between the Government of India and the provincial governments.

On the basis of these reports, Mr. Montagu's bill was introduced in the House of Commons during the last week of May and was read a second time on June 5. It was then resolved to ask the House of Lords to agree to the creation of a joint committee of the two houses which should take evidence on the bill from both British and Indian sources. This resolution was concurred in by the Lords on June 30, and the committee was at once appointed with Lord Selborne as chairman. The taking of evidence was continued through the summer. The first deputations from India who desired to be heard on the bill were from the Moderate Party of India, the Indian National Congress, and the All-India Moslem League. Mrs. Annie Besant came to represent the National Home Rule League which she had formed after resigning the leadership of the Home Rule League. There were representatives also of the Madras Labor Union and of the non-Brahmans of Madras.

The opposition to the bill came from various quarters. It was opposed by many of the British in India, who were organized in the European Association. It was also opposed by the non-Brahmans, who feared that the bill would put the government into the hands of the priestly caste which had oppressed India in the past. It was opposed by the extreme reformers as not granting democracy enough, and it was opposed by those who feared that it gave too much power to a people not trained in self-government. The Brahmans contended that the feud between Moslem and Brahman was chiefly fostered by the Moslems, who were in the minority but who included many of the titular maharajahs and rajahs. They claimed that with the granting of social legislation the feud would disappear. An unsuccessful effort was made to include women in the electorate. It was contended that even where *purdah* was observed, there was no real obstacle to women voting. *Purdah* never pre-

vented a woman from doing what she was determined to do, was the evidence given by one Indian woman. In India women had been supreme rulers, and it would be introducing a new and western prejudice to discriminate between men and women in granting the franchise. It was acknowledged, however, that illiteracy was practically universal among women in India. The bill was passed by both Houses without amendment and became law at the end of December.

Portions of India suffered severely from famine during the year. There were also epidemics of cholera which attacked especially communities that had been weakened by influenza the preceding year, when over 6,000,000 of the people of India died of this disease. One dramatic incident was the relinquishment by Rabindranath Tagore of the knighthood conferred on him by King Edward VII. He explained in a letter to the Viceroy that he desired to take this step because of "the disproportionate severity of the punishments inflicted on the people of the Punjab" in consequence of the local disturbances of April, 1919. Whatever mistakes may have been made in policy or administration, however, there was undoubtedly a strong desire to find a method of raising India to the dignity of a Dominion and of satisfying her legitimate aspiration for self-government.

Egypt.—Early in 1919 Sir Reginald Wingate, the High Commissioner, was summoned to London for consultation on the situation in Egypt. His departure was hailed as a triumph for the agitators who had opposed his rule, and in March serious trouble broke out in both Lower and Upper Egypt. The rioters were joined by some of the Beduin, who attacked detachments of British and Australian troops, destroyed portions of the railway, broke up trains, and burned stations and other property. The British Government appointed Gen. Sir E. H. Allenby Special High Commissioner to deal with the situation, and measures were at once taken to prevent the disorder from spreading. The rural population in the cotton regions remained quiet, and there was no disturbance in the Soudan, but Cairo was isolated and telegraphic communica-

tion between Upper and Lower Egypt was broken. In Cairo General Wat-son summoned the Egyptian Independence Committee and told them that as they were responsible for starting the agitation, he looked to them to stop it. They promised to give all the aid in their power but pleaded that the movement was now out of their control. By the end of March it was reported that order had been restored over most of the disturbed area. There were further disturbances later in the year, and only the military power of the British sufficed to keep order. In December the Ministry resigned as a protest against the Government policy.

The Soudan was quiet and prosperous throughout the year. In July, Cecil Harmsworth, Under-Secretary of State for Foreign Affairs, asked the House of Commons to sanction a loan for £6,000,000 for the construction of irrigation works which, it was expected, would add over 200,000 acres to the area in which Egyptian cotton could be grown. A deputation of Soudanese chiefs visited London in July, and the son of the late Mahdi presented a loyal address and a golden sword to King George. The King accepted the sword and handed it back to the prince to hold in defence of the Throne and the Empire, congratulating the group of notables on the spirit of peace and justice which had reigned in the Soudan throughout the period of war in Europe.

South Africa.—Gen. Louis Botha, Premier of the Union of South Africa, died on Aug. 27. He and Gen. Jan C. Smuts had represented South Africa at the Peace Conference, but the more prominent part had been taken by General Smuts on account of the failing health of the Premier. The High Commissioner, Andrew Fisher, entrusted the formation of a new Government to General Smuts. The task was a difficult one, as Smuts was distrusted by the more conservative element among both the Dutch and the British, and General Hertzog with his following of Nationalists was in open opposition. The Nationalists had appealed to Lloyd-George in Paris after the Peace Conference with a demand for independence of the former Boer republics. Lloyd-George's reply was

III. FOREIGN HISTORY

that the Union rested on a fundamental agreement between British and Dutch elements, and it could not be dissolved by the action of one section of one of these elements without the consent of the others. It was futile to believe that South Africa could return to the isolation which was only possible a century ago. A declaration to the same effect was made by General Smuts in Parliament at Capetown on Sept. 14. Protests from India were received at Capetown in July against the Asiatic Land and Trading Amendment Act which was passed by the South African Parliament early in the year. This Act curtailed the already restricted rights of British Indians resident in South Africa in regard to obtaining trading licenses and the occupation of land. These Indians, most of whom had been brought to Africa under five-year terms of indenture and who had remained after serving their time, had been a cause of friction since the beginning of the century. The Government of India has repeatedly protested against discriminations against them, made largely because their competition for places in the civil service and in trade is keenly felt by the whites of Natal and the Transvaal.

Australia.—The season of 1918-19 was dry throughout Australia. New South Wales and Queensland suffered severely from loss of stock and from bush fires. The wheat crop was poor compared with previous years, but there was a considerable margin for export. The signing of the armistice in November, 1918, released shipping, and there were large importations into Australia of goods that had been lacking during the period of hostilities. It was also possible to secure shipping for part of the foodstuffs that had been accumulating for export. Due to the fact that it had been impossible to send out the surplus of food, prices of food did not rise in Australia during the war as they did in other countries. The new activity in overseas commerce brought with it a period of great prosperity. A peace loan of £25,000,000 was floated in September, making the eighth loan contracted by the Government for the expenses of the war. The debt incurred for Australia's share in the war

amounted to £210,000,000. It was largely through the insistence of Premier Hughes that the overseas Dominions of Great Britain were given the status of nations and allowed separate representation in the League of Nations by the Peace Conference. (See also *Canada, supra.*) In an address to the Australian Federal Parliament on Sept. 10, Mr. Hughes thus explained the reasons for his insistence and the consequences of the new relation of Australia with the Mother Country and with the world:

Britain could not speak for us because she had very many interests concerned. It was therefore necessary, and this applied to the other dominions as well as ourselves, that Australia should be represented, not, as at first suggested, in a British panel, taking our place in rotation, but with every other belligerent nation. This was at length accepted, and to Australia, and to every one of the self-governing dominions separate representation was conceded. To us was given recognition of Australia as a nation. We entered into the family of nations on a footing of equality.

Mr. Hughes expressed himself as opposed to any idea of an Imperial federation. He was unwilling that the Dominions should surrender one jot or tittle of their political independence. What he claimed for Australia was the right to make or to refuse to make treaties, to make what tariffs it pleased, to have its own army and navy; and to be in all things a nation independent in all respects, including control of foreign policy. Nevertheless, he looked to the strengthening, not the weakening, of "that collection of nations that men call the British Empire," though he refused to prophesy on what lines the new developments that had become necessary would take place.

Newfoundland.—The Newfoundland legislature of the war period was elected in 1913. It would have expired in 1917 but was continued by a special Act of Parliament. A general election took place on Nov. 1, 1919. It resulted in a defeat of the Government and the formation of a new ministry headed by Richard Squire. William Cooker, the most prominent Labor leader of the Dominion and head of the Fisherman's Union, became Minister of Marine and Fisheries.

CONTINENTAL EUROPE AND ASIA

WILLIS FLETCHER JOHNSON

AUSTRIA

The remnant of the former Hapsburg Empire, consisting chiefly of the German provinces of Austria, forming a republic under President Karl Seitz, began the year in financial and industrial chaos. In Vienna alone 120,000 men were idle, and the people were dependent upon food supplies from the British army in Italy. A general election for a National Assembly on Feb. 16 resulted in a plurality for the Social Democrats, the Christian Socialists and the Liberals being the other important parties. Early in March a committee of the Assembly proposed the formation of an Austrian Republic including south German Tyrol and German Bohemia. The Chancellor, Karl Renner, favored this, whereas the Foreign Minister, Otto Bauer, was intriguing for the annexation of Austria to Germany. A republican constitution was adopted on March 14, providing for a Chancellor of State and ten ministers, the departments of Foreign Affairs, of War, and of Food and Traffic to exist "only until union with Germany is accomplished" (such union was subsequently forbidden by the Supreme Council of the Peace Conference at Paris). A Government was organized with Renner as Chancellor, Bauer as Minister of Foreign Affairs and also of Socialization, Herr Jodofink as Vice-Chancellor, Herr Schumpeter as Minister of Finance, and Dr. Julius as Minister of War. The former Emperor Karl was exiled and went to Switzerland. A law was passed forever abolishing the Hapsburg dynasty, exiling all members of the families of Hapsburg-Lorraine and Bourbon-Parma, and appropriating the real and personal estates of the former imperial house for the benefit of sufferers from the war. The private property of the former Emperor and his wife, however, was not thus taken. In April a Conference of Soldiers' Councils at Vienna voted against a Soviet Republic but in favor of a Socialist government. This Conference, led by Col. Stoessel Wimmer, on April 17 seized control of Vienna, at the incitement of Bela Kun, the Hungarian Bolshevik (see *infra*),

and an attempt was made by an unemployed mob to burn the Parliament House; but these movements were promptly suppressed. A month later an attempt was made to establish a seceding and independent Government at Salzburg, which also failed. At the middle of June a Communist uprising in Vienna was crushed by the army.

Because of his failing to secure union with Germany, Bauer on July 26 resigned the Ministry of Foreign Affairs, which was taken by Dr. Renner in addition to the Chancellorship. The National Assembly on Sept. 6 voted by 97 to 23, though under strong protest, to accept the Peace Treaty of St. Germain (see II, *International Relations*). Thereafter affairs grew steadily worse. Scarcity of food approximated famine, and lack of fuel paralyzed many great industries. At mid-November the first year of the Austrian Republic closed with a Treasury deficit of 13,000,000,000 crowns and with the Government making almost frantic appeals to Europe and America for credits and supplies to save it from collapse and the people from starvation. On Dec. 27 all passenger trains on railroads were stopped for a week, for saving of coal.

FRANCE

Attention was so centered upon the Peace Conference that at the beginning of the year France was scarcely aware of the magnitude of her domestic problems. A rude shock was given by the attempt of an anarchist named Cottin to murder the Prime Minister, Georges Clemenceau, on Feb. 19. M. Clemenceau was shot through the lungs but soon made a complete recovery. At this time the Finance Minister, Louis L. Klotz, was planning a tax on capital, the payment of which would extend over many years, coupling with it a demand that Germany should be made to pay in full the war losses inflicted upon France. It was shown that there was a deficit of \$4,400,000,000 to be met; that war expenditures had aggregated \$23,800,000,000; and the yearly budget would

thereafter be three or four times larger than before the war. It was proposed to appropriate \$376,000,000 in the next three months for reconstruction and relief of the ravaged regions. On March 21 Alexandre Millerand was appointed Governor of Alsace-Lorraine. Ten days later the trial of ex-Senator Humbert and Captain Ladoux for treason was begun. It ended in their acquittal on May 10. A *scrutin de liste* electoral bill was enacted, but a woman-suffrage amendment was defeated. An eight-hour bill was also enacted on April 23. Serious anarchist and Socialist riots occurred in Paris on May Day, and hundreds of persons were injured. On June 1 serious strikes occurred on transportation lines in Paris and elsewhere, 500,000 men going out. A fortnight later all miners struck, and a universal strike was ordered. On July 2 the Government announced a reconstruction plan involving a total cost of \$8,000,000,000. A fortnight later vigorous action was taken for the suppression of profiteering and for reduction of the cost of food. A strenuous debate of several days on the cost of food began on July 18, in the course of which M. Boret, Minister of Agriculture and Supplies, was replaced by J. B. Nouzens. At the end M. Clemenceau obtained a vote of confidence by 272 to 181. The next day on the question of M. Klotz's financial policy a vote of confidence of 304 to 134 was given.

The German Peace Treaty was ratified on Oct. 11, on Oct. 14 President Poincaré signed a decree for general demobilization, on Oct. 15 the Ministry received a vote of confidence of 324 to 132, and on Oct. 19 Parliament adjourned without day, the election of its successor having been set for Nov. 16. Two days later an elaborate plot was detected for a German uprising in Alsace on Nov. 7 or 9, the source of which was traced to the German Government at Berlin. Communists and syndicalists also plotted for a general strike throughout France on the former date. Although he had announced that he would not again accept the Premiership, M. Clemenceau became a candidate for reelection to the Chamber, choosing Strasbourg as his constituency, and he opened his campaign on Nov. 4 with a notable speech in that

city, the keynotes of which were "justice" and "work." During the campaign M. Clemenceau compelled Albert Lebrun to resign from the Ministry of the Liberated Territories, because he had voted against ratifying the Peace Treaty, and appointed André Tardieu in his place. He also insisted upon the retirement of M. Loucheur, Minister of Reconstruction.

The electoral campaign was noteworthy for three major features: it was the first since 1871 in which Alsace and Lorraine participated; it was the first since 1871 in which there had been no Monarchist Party arrayed against the Republic; and it was the first in 30 years under *scrutin de liste*. The result of the election was an overwhelming victory for M. Clemenceau and for Republicanism and a staggering defeat for Socialism, the Unified Socialists obtaining only 55 seats in 626, while the parties which had supported M. Clemenceau's Ministry secured more than 500. Following the election Louis Dubois was appointed Minister of Commerce and M. Shuman Minister of Labor, replacing MM. Clementel and Colliard, who failed of reelection. The Chamber on Dec. 19 passed, by a vote of 491 to 64, a loan bill, providing for five per cent bonds, redeemable by lot at six months intervals during 60 years.

GERMANY

Early in January a "Spartacan" revolution of "Red" Socialists, anarchists, and Bolsheviks, broke out at Berlin and extended to many other cities. Its leaders were Kadek, a Russian propagandist sent thither for the purpose by Lenine and Trotsky, Karl Liebknecht, Rosa Luxemburg, and Eichorn, the former Chief of Police of Berlin. Between them and the Government forces, directed by Frederick Ebert and Philip Scheidemann, civil war raged for a fortnight. On Jan. 16 Liebknecht and Rosa Luxemburg were killed, and thereafter the revolt declined. On March 3 a general strike occurred in Berlin, and hundreds were killed in street fighting. In April a Soviet Republic was proclaimed at Munich, and for a time the legitimate

Government was driven to flight. A revolt of former soldiers, especially of the wounded dissatisfied with their pay, occurred at Dresden, and the Saxon Minister of War was murdered.

A draft of a proposed constitution was completed on Jan. 15, and four days later general elections for a National Assembly were held, in which President Ebert's Majority Socialist Party secured 164 out of 421 delegates, the rest being divided among five other parties. The Assembly met at Weimar on Feb. 6; Dr. Edward David was made its President, and Frederick Ebert was elected President of the German Republic on a tentative constitution. The following Cabinet was formed: Prime Minister or Chancellor, Philip Scheidemann; Finance, Bernhard Dernburg; Foreign Affairs, Count von Brockdorff-Rantzau; Home Affairs, Hugo Preuss; Labor, Gustav Bauer; Reconstruction, Herr Wissell; Food Supplies, Robert Schmidt; Colonies, Dr. Bell; Justice, Herr Landsberg; Defence, Gustav Noske; Posts, Herr Giesberts; without portfolios, Edward David, Matthias Erzberger, Georg Gothein. When in June the Assembly ordered the signing of the Treaty of Peace, Scheidemann resigned the Chancellorship and the Cabinet was reorganized. Gustav Bauer became Chancellor; Matthias Erzberger, Vice-Chancellor and Minister of Finance; Edward David, Interior; Herr Wissell, Economics; Herr Schlicke, Labor; Herr Meyer, Treasurer; Herr Giesberts, Posts and Telegraphs; Dr. Bell, Colonies; Gustav Noske, National Defense; Dr. Schmidt, Food. Later Dr. Schiller was appointed Minister of Justice, and Herr Koch replaced Edward David as Minister of the Interior, the latter becoming a Minister without portfolio.

The Assembly on July 31 approved a permanent constitution by a vote of 262 to 76, and Konstantin Fehrenbach, who had succeeded Edward David as President of the Assembly, formally declared it adopted. It differed from the constitution proposed in February in retaining the name "*Reich*" or "Empire," instead of "Republic," and in retaining the old divisions of states instead of dividing the whole into 15 approximately equal parts. In order to prevent too great domination by

Prussia, however, it was provided that every state shall have at least one representative in the Imperial Council, or upper house of Parliament, and no state shall have more than two-fifths of the whole. The lower house consists of the old Reichstag, elected for four years on a basis of population. The "*Reich*" is a federal republic, in which only minor matters of government are left to the states. The President is chosen by the people for a term of seven years; in his powers and functions he resembles the American rather than the French President, though differing radically from both. The Chancellor as head of the Cabinet has much less authority than the Prime Minister of France or Great Britain. He and all Ministers are appointed by the President. The sexes are politically equal; there is freedom and equality of religious faiths; education is compulsory for eight years; and there are Government councils for the control of industries in which workmen have a voice. On Aug. 21 President Ebert was formally installed under the constitution, and the Weimar Assembly was dissolved.

Financial legislation naturally commanded first attention of the Government. A plan was adopted on July 25 for the raising of 25,000,000,000 marks yearly. Of this sum, eight billions will come from a continuation of the war taxes. The remainder will come from new sources, including taxes on incomes, on business, on the necessities of life, and from the "imperial sacrifice to needs." A popular loan of five billion marks was sought in December, but only about four billions were subscribed.

Kurt Eisner, the Socialist Prime Minister of Bavaria, who favored Bavarian independence of Germany, was murdered on Feb. 21 by Count Arco-Valley as a part of a plot to restore the monarchy, and formidable monarchical intrigues and attempts at insurrection continued for some time, alternating with Bolshevik outbreaks. In June a strong and persistent effort was made to establish an independent Rhineland Republic to be allied with France. Hugo Haase, President of the Independent Socialist Party, was shot by an Austrian, Johann Voss, on Oct. 8, as he was entering the Reich-

stag, and died from his wounds on Nov. 7. The crime was personal in its motive. Early in November revolutionary strikes were undertaken in Berlin but were suppressed by Gustav Noske, Minister of Defense. The arrival of Field Marshal von Hindenburg at the capital was the occasion of great popular demonstrations, which were repeated upon the arrival a few days later of General Ludendorff, and there was a distinct revival of monarchical sentiment.

HUNGARY

The Hungarian Republic began the year in the throes of an acute attack of Bolshevism, imported from Russia, against which the President, Count Michael Karolyi, struggled in vain. In hope of checking the revolutionary movement, on Feb. 26 the work of dividing the great landed estates among the people was begun, Count Karolyi's being the first to be partitioned. But a few weeks later a "Red" uprising under the lead of a Bolshevik, Bela Kun, forced President Karolyi and his Cabinet to resign, the ostensible pretext, however, being, dissatisfaction with the demands of the Peace Conference concerning the boundary between Hungary and Rumania. There succeeded a Soviet Government, in closer relations with the Bolshevik Government in Russia, of which Alexander Garbai was President, Bela Kun, "People's Commissioner" for Foreign Affairs, Bela Szekely for Finance, Eugen Landler for Home Affairs, Siegmund Kunfy for Education, Joseph Pogany for War, and Eugen Hamburger for Agriculture. This Government at once separated church and state and abolished all ranks and titles. All discrimination between legitimate and illegitimate children was abolished, and the state assumed control of all newspapers and theatres. A "dictatorship by the Proletariat" was proclaimed. Plundering and disorder in a few days prevailed to such an extent that the Allies were constrained to send troops to occupy most of the country. Elections for a National Assembly were ordered for April 14, at which all persons of both sexes 18 years or more of age were to vote, excepting criminals, employers of wage earners, merchants, priests, lunatics,

and persons living on unearned incomes. It was proposed to guarantee professional men incomes of not less than \$7,200, merchants and manufacturers not less than \$5,000, and workmen and day laborers not less than \$3,300 a year. Many German officers aided in the organization of a "Red" army, and Nicholas Lenine offered to send 150,000 Bolshevik troops from Russia to help the Hungarian Bolsheviks. The state of chaos into which Hungary thus fell provoked a Rumanian invasion, which began on April 22. By May 3 the Rumanian army had surrounded Budapest, in which city the Bolsheviks were engaged in orgies resembling the wildest excesses of the French Revolution. The invading armies did not occupy the city, however, but presently withdrew, leaving Bela Kun, as Soviet Dictator, to rule as he pleased. A reign of terror ensued, in which thousands were murdered and massacred by the "Reds" in the capital and elsewhere. A Soviet army was also sent by Bela Kun to invade Czecho-Slovakia and to establish a Soviet Government there. At the middle of July, however, Bela Kun was ousted by some of his colleagues, Eugen Landler becoming for a time head of the Government. Bela Kun became a fugitive, and Count Karolyi, who seems to have aided and abetted him, also took to flight, but was arrested at Prague. Another reign of terror ensued, during which Bela Kun returned and resumed power for a few days, but at the first of August he was again expelled and a moderate Government was established under Julius Peidl.

In defiance of the Allies at Paris (see II, *International Relations*), the Rumanian army again advanced, and on Aug. 4 entered Budapest, King Ferdinand himself entering the city on Aug. 7, in retaliation for the Hungarian humiliation of Bucharest in 1916. Simultaneously a revolution occurred. The Peidl Government was overthrown, and Archduke Joseph, a Hapsburg, proclaimed himself Governor and appointed a new Cabinet, which after several reorganizations consisted of Stephen Friedrich, Prime Minister; Martin Lovasky, Foreign Affairs; Baron Sigismund Perenyi, Interior; Dr. Johann Grunn, Finance; General

Schnitzer, War; George Balogh, Justice; Stephan Szabo, Agriculture; Karl Huszar, Religion and Education; Dr. D. Sillery, Health; Professor J. Bleyer, National Minorities. The Archduke avowed his loyalty to the Republic and his purpose to fulfill all the conditions of the armistice. The Socialists were against him, but he had the support of the Conservatives and peasantry. The Supreme Council of the Peace Conference at Paris, however, insisted upon his retirement, and on Aug. 23 he complied and went to Switzerland. Immediately a revolutionary movement was started against the Cabinet, and Franz Heinrich, a hardware dealer of Budapest, organized a rival Cabinet. Stephen Friedrich held his ground resolutely, however, though he made some changes among his colleagues. Taking the Interior Department himself in addition to the Premiership, he made Count Qzaky Minister of Foreign Affairs, M. Rubinek of Agriculture, M. Ereky of Food, M. Haller of Propaganda, Franz Heinrich of Commerce, and Stephen Szabo of Small Farms, and retained Schnitzer, Balogh, Huszar, and Sillery in their former places. This Cabinet secured the withdrawal of the Rumanian forces and held the revolutionists in check. But within three months it was compelled to retire, and on Nov. 24 it was succeeded by another with Karl Huszar as Prime Minister, and the other places filled as follows: Interior, M. Beniczky; Education, Stephan Haller; Agriculture, Julius Rubinek; Commerce, Franz Heinrich; Public Safety, Karl Payer; Foreign Affairs, Count Somzich; Justice, Dr. Parizy; National Minorities, Jacob Bleyer; War, Stephen Friedrich; Finance, M. Koranyi; Supplies, Stephan Szabo; Small Farms, M. Sokospatka.

ITALY

Cabinet dissensions marked the beginning of the year in Italy. While the Prime Minister, Vittorio Orlando, was attending the Peace Conference at Paris (see II, *International Relations*), the Finance Minister, Francesco Nitti, organized an opposition to him, with the result that all the Ministers offered their resignations. The King thereupon appointed Signor

Stringher to be Finance Minister in place of Nitti; General Badoglio, War, in place of General Zupelli; Admiral Thaon di Revel, Marine, in place of Admiral Del Buono; Signor Sacta, Justice, in place of Signor Sacchi; and Signor Stradenetto, Posts and Telegraphs, in place of Signor Fera. The other Ministers were requested to remain, though with some changes of places. The great issue in domestic as well as foreign politics was that of the boundary between Italy and Jugoslavia and especially the possession of the port of Fiume. Dissatisfaction steadily increased with Orlando's inability to persuade the Peace Conference to grant the Italian demands, and finally on June 19 "no confidence" was voted by 259 to 78, and the Cabinet at once resigned. The new Cabinet formed on June 23, consisted of Francesco Nitti, Prime Minister and Minister of the Interior; Tommaso Tittoni, Foreign Affairs; Luigi Rossi, Colonies; Signor Mortara, Justice; General Albricci, War; Admiral Sechi, Marine; Alfredo Baccelli, Instruction; Signor Pantano, Works; Signor De Vito, Transport; Signor Visocchi, Agriculture; Carlo Ferraris, Commerce, Industry and Food; Signor Chizenti, Posts; Signor Dacomo, Military Assistance and Pensions; Signor De Nava, the Redeemed Provinces. In the early part of July food riots prevailed throughout nearly all northern Italy, and these were complicated with Bolshevik and anarchist conspiracies. Vigorous action was taken by the Government for maintaining order, for forcing down prices, and for punishing profiteers. An attempt at a universal strike on July 21 was a failure. On July 31 a new election law was enacted providing for proportional voting and minority representation.

Gabriele d'Annunzio on Sept. 13 took the defiant step of seizing possession of Fiume with a band of volunteers. This course was disapproved by the Allies (see II, *International Relations*) and also by the Italian Government, but when Italian troops were ordered to proceed against him, they mutinied and joined forces with him instead. Thereafter his resolute retention of Fiume and his threatened extension of sway over all Dalmatia was the foremost issue in both domes-

RUSSIA

tic and foreign politics. Despite the popular enthusiasm for d'Annunzio's exploit, a strong vote of confidence was given to the Nitti Ministry on Sept. 27. Two days later Parliament was dissolved, elections were ordered for Nov. 16, and the meeting of the new Parliament was set for Dec. 1. The elections were marked with three striking features: the light vote polled, only 50 per cent. of the electorate; the general participation of the Roman Catholics; and the great gains of the Socialists, due to abstention of their opponents. The Constitutionalists, or Government party, secured 261 seats, including 161 Liberals and 100 Catholics, and the Socialists 156. There were elected 156 Socialists, 16 Reformed Socialists, 23 Democrats, and nine Republicans. In the former Chamber there had been only 77 Socialists and 24 Catholics. By this time d'Annunzio had at Fiume an army of 50,000 and was planning the conquest of all Dalmatia and Montenegro, and war with the Jugo-Slavs seemed imminent. At the same time the Nationalist Party, led by Signor Salandra, was fomenting opposition to the Nitti Government. Tomasso Tittoni resigned the Foreign portfolio on Nov. 24 and was succeeded by Vittorio Scialoja.

Vittorio Orlando, former Prime Minister, was elected President of the Chamber of Deputies by 251 votes against 143 for Signor Lazzara, the Socialist candidate, and Tomasso Tittoni, who had resigned as Foreign Minister, was appointed by the King President of the Senate. Following the opening of Parliament, there was a perceptible reaction on the part of the nation against Socialism and in favor of constitutionalism. A motion to recognize the Soviet Government in Russia was rejected by a vote of 289 to 124. About the middle of December d'Annunzio announced from Fiume that he was ready to make terms with the Government if he were assured that Italy would neither renounce Fiume nor abandon any other occupied territory, but at the end of the year he was still at Fiume, declaring his purpose to hold the place "to the last morsel of bread and the last drop of blood."

The Bolshevik Triumvirate continued their reign of terror over the "Soviet Republic" of Russia at Petrograd, Vladimir Ilitch Ulianoff, renamed Nicolas Lenine, being President of the Council; M. Tchitcherin, Minister for Foreign Affairs; and Isidor Braunstein, renamed Leon Trotsky, Minister of War. Activities were chiefly devoted to the creation of an enormous army, composed exclusively of former workmen, from which all "intellectuals" were rigidly barred, for the avowed purpose of conquering the world for Bolshevism. To this end practically all industries save the manufacture of military supplies were abandoned, production fell to a minimum, and great distress prevailed. Almost incessant fighting prevailed on four major fronts. One was at the north, where the Republic of North Russia, comprising the greater part of the Province of Archangel, under the Presidency of Nicholas Tchaikovsky, held its ground with desperate valor with little and uncertain aid from the Allies. The second was at the East, where the Republic of Siberia, under Admiral Kolchak, had an admirably organized Government at Omsk and nominally comprised four-fifths of the area of the former Russian Empire. The third was at the south, where General Denikin, Hetman of the Don Cossacks, waged an aggressive campaign. The fourth was in the Baltic region, where General Yudenitch led the forces of Northwest Russia to the very suburbs of Petrograd. On all these fronts the tide of war rose and fell with varying advantage, the end of the year finding the net situation distinctly to the advantage of the Bolsheviks. The most marked changes were on the eastern front. There Admiral Kolchak made a seemingly irresistible advance, until in May he established his capital at Ekaterinburg and opened direct communication and co-operation with the North-Russian forces. The Bolsheviks then, having drafted to the colors all workmen up to the age of 45, made a furious counterattack at Ufa, on July 3 occupied Perm, on July 14 occupied Ekaterinburg, from which Kolchak had fled, and before the end of November had

compelled the Siberian Government to retire from Omsk eastward to Irkutsk.

General Denikin was at war with both the Bolsheviks and the Ukrainians under General Petlura. He captured Poltava on Aug. 2, Kiev on Sept. 1, and Orel on Oct. 16. Later he met with reverses, and at the end of the year he was in flight before the victorious Bolsheviks. The Allies evacuated Odessa on April 10, and the Bolsheviks occupied it, but on Aug. 23 they were driven out by the Ukrainians. General Yudenitch twice advanced close to Petrograd, but failed to take the place because of lack of expected support from Finland or from the Allies. At the north the aid given by the Allies was steadily diminished, and in September the British forces were withdrawn and the British naval base at Archangel was abandoned. (See also *The European War, infra.*)

In addition to North Russia, Siberia, Ukraina, and Northwest Russia, numerous minor fragments of the former Empire attempted during the year to establish independent republics. These included Murmania, the Don Republic, the Tartar-Bashkir Republic, White Russia, Turkestan, the Kuban Republic, the Tauride Republic, Georgia, the Yakutsk Republic, the Terek Republic, and the Republic of Eastern Karelia.

When the Bolsheviks occupied Omsk at the middle of November, they burned much of the city and massacred many of the inhabitants. Admiral Kolchak and his Government retired to Irkutsk, and there on Nov. 23 the Cabinet was reorganized so as to give representation to all anti-Bolshevist parties and to command the support of the Social Revolutionists, the Zemstvos, the Czechs and the Cossacks. On Dec. 23 a revolt against Kolchak occurred at Irkutsk and he resigned office in favor of General Semenov.

BALTIC STATES

Independent Russian Provinces.—

The former Russian provinces of Kovno, Courland, Livonia, and Esthonia, fronting on the Baltic Sea, spent the year in a struggle to establish their independence, either as separate states

or united under a single Northwest Russian Government. Courland especially was occupied by German troops under General von der Goltz until early fall, and after their withdrawal under pressure from the Allies was invaded by Russian Bolsheviks. Further north the Letts and Estonians were able to assert themselves more strongly. They expelled the Germans from Riga and elsewhere, drove out thousands of "Reds" and unwelcome aliens, and took the aggressive against the Bolsheviks of Petrograd. As early as Jan. 6 the Bolsheviks undertook to overthrow the Government of M. Pels in Esthonia but were quickly defeated, and in May an Estonian army took the lead in a formidable advance against Petrograd, penetrating to within 30 miles of that city. In this movement they were assisted by the Finns at the north and were in touch with the Letts at the south. At the end of November the Lettish Government severed relations with Germany, and ordered all Germans out of the country northeast of Riga.

A united Government of Northwest Russia was organized at Reval in October, under the Premiership of Stefan Liasonoff, formerly a banker of Moscow. The several states also maintained their own local Governments, M. Strandmann being Premier of Esthonia until late in November, when he was succeeded by M. Tonnisson. The commander of the united armies was General Yudenitch, who in October again advanced to within a few miles of Petrograd but was compelled to fall back. Early in December representatives of all the Baltic Provinces, Poland, Ukraina, and White Russia, met at Dorpat to consider the formation of a military and political league.

Finland.—The year began in Finland with the organization of a strong Social Democratic party, which committed itself unreservedly against Bolshevism. At the beginning of June war was declared against the Bolsheviks, Kronstadt was bombarded and aid was given to the Estonians and Letts. The Prime Minister, Gen. Justus Mannerheim, resigned on July 2, but under the new constitution which was then adopted remained in office as regent until a chief of state

III. FOREIGN HISTORY

could be regularly chosen. On July 25 the Diet, acting under the new constitution, elected Prof. K. J. Stahlberg of the University of Helsingfors to be President of the Republic of Finland. A new Cabinet was formed on Aug. 18 with M. Vennola as Prime Minister. President Stahlberg himself entered the Cabinet and took the portfolio of War.

NEW CENTRAL STATES

Czecho-Slovakia.—The Czecho-Slovak Republic, under President Thomas G. Masaryk, enjoyed stability of government during the year, though it did not escape the common troubles of all Europe. Bolshevik conspirators on Jan. 11 attempted vainly to murder Dr. Kramarz, the Foreign Minister, and later in the month there was some fighting with the Poles in Western Galicia. In March the German residents of Bohemia tried to hold elections for members of the Austrian National Assembly, but the attempt was prevented, as were German attempts to organize insurrection and revolution. In June a Soviet conspiracy was detected and suppressed. The Cabinet was reorganized on July 5, when Vlastimil Tusar became Prime Minister in place of Dr. Kramarz and the other offices were filled with Social Democrats and Agrarians. Dr. Benes remained in the Foreign Office. In the national elections held at that time in Bohemia about 4,500,000 votes were cast; 68 per cent. of the voters were Czechs, the remainder being chiefly Germans. Two members of the Cabinet resigned their places in September for purely personal reasons. The country suffered from lack of food and of raw materials for manufactures, though less than some other lands, and an excellent harvest brought much relief in the fall.

Lithuania.—The temporary administration of Lithuania, at the request of the Government of that Republic, was taken over by Poland at the middle of January, in order to afford protection from the Bolsheviks. In March a Cabinet crisis occurred, the Socialists withdrew, and a new Ministry was formed under the Premiership of M. Dovaitis, with a Christian Democratic majority and with the

support of the Progressives under M. Norenka. On April 4 Antanas Smetonas, a lawyer, formerly President of the Council of State, was elected President of the Republic.

Poland.—In the first week of January the Conservatives and Liberals under the lead of Prince Eustache Sapieha tried to depose and imprison the Dictator of Poland, Gen. Joseph Pilsudski, because of his refusal to admit members of those parties to the Cabinet, which was exclusively Social Democratic. The attempt failed, and the timely arrival of Ignace Jan Paderewski led to a compromise under which the latter became Prime Minister and General Pilsudski Minister for Foreign Affairs. The latter soon retired, however, and on Jan. 19 the Cabinet was constituted as follows: Prime Minister and Foreign Affairs, I. J. Paderewski; Interior, M. Wojciechowski; Commerce, M. Honcica; Finance, M. English; Health, M. Janisseewski; Communications, M. Eberhardt; Posts and Telegraphs, M. Lindq; Agriculture, M. Janicki; Arts, M. Przesmyski; Labor, M. Iwonowski; Food, M. Minkiewicz; Justice, M. Suinski; Public Works, M. Pruchnik. The Provisional President of the Republic was M. Demowski, formerly Polish leader in the Russian Duma. This Government was formally recognized in February by the United States and other powers. At the beginning of February elections were held for a National Constituent Assembly, in which the supporters of M. Paderewski were successful, polling 50 per cent. of the votes whereas the Socialists got only 15 per cent. Women voted equally with men. The Assembly on Feb. 20 made General Pilsudski provisional President of the Republic until a Constitution should be adopted. Meanwhile Germany was waging open war against Poland in Posen, and there were hostilities with the Ukrainians and Czecho-Slovaks over the possession of border territories. During the summer there was an attack in great force by the Russian Bolsheviks in and through Lithuania. All these troubles were successfully dealt with by the Polish forces (see *The European War, infra*), and the controversy with the Ukrainians and Czecho-Slovaks in Eastern Galicia was settled in

November, when, as a result of plebiscite, the Peace Conference gave Poland a mandate over that territory for 25 years. From 64 to 89 per cent. of the votes were cast in favor of Poland. The Polish Cabinet resigned on Nov. 29, but the Chamber voted confidence in M. Paderewski and authorized him to form a new Cabinet. On Dec. 14, however, it was announced that M. Paderewski had definitely resigned and that M. Skulski, leader of the Coalition Party, would succeed him with a Ministry representing the Coalition Party, the National Democrats and the peasants. This ministry consisted of M. Skulski, Premier; M. Wojciechowski, Interior; General Iesniewski, War; M. Grabski, Finance; M. Hebdzynski, Justice; M. Iopuszanski, Education; M. Olszewski, Commerce and Industry; M. Bardell, Agriculture; M. Koyree, Transportation; M. Tolloszko, Posts; M. Kindzios, Public Works; M. Sliwinski, Food; M. Opolowski, Labor; M. Seyda, Minister for the Former Prussian Province.

Ukraine.—General Petlura, the military Chief of State of the Ukrainian Republic, at the beginning of October formed a new Cabinet, consisting of M. Maseppi, Prime Minister and Minister of the Interior; M. Slavinsky, Foreign Affairs; M. Petroff, War; M. Martoff, Finance; M. Kovalevsky, Agriculture; M. Chaldrun, Public Economy; M. Timochenko, Transportation; M. Odrin, Health; M. Propokovitch, Education; M. Chienko, Worship; M. Bezralko, Labor; M. Palvodu, Posts and Telegraphs; M. Drasny, Jewish Affairs; M. Tcherkov, Press and Propaganda; M. Archipenko, State Controller; M. Kertchinsky, State Secretary. In November and December General Denikin, the anti-Bolshevist leader in Southern Russia, steadily overcame Petlura's forces and seemed likely to overthrow his Government and reunite Ukraine with Russia.

THE BALKAN STATES

Albania.—A new Ministry was formed at Durazzo, the provisional capital of Albania, on Jan. 23, as follows: President, Turkhan Pasha, former Prime Minister; Vice-President, Prenk Bib Doda, Prince of Mir-

ditia; Minister for Foreign Affairs, Mehmed Bey Konitsa, former Minister to Greece; Interior, Mehdi Bey Frasheri, former governor of Durazzo; Instruction, Louis Gurakuki, former director of the Elbasan normal school; Justice, Peter Poga, reappointed; National Economy, Lef Nosi, former Minister of Posts and Telegraphs; Finance, Feizli Bey Alizoti, former Minister of Interior; without portfolios, Mufid Bey Libohova, Michael Bey Turtulli, Midhat Bey Frasheri, and Mgr. Bumchi, Roman Catholic Bishop of Alessio. This Ministry was composed of Mohammedans, Roman Catholics, and Orthodox Churchmen.

Bulgaria.—Sanguinary uprisings occurred at Sofia in May, and again in July, in favor of a soviet republic, which were suppressed by the army. Legislative elections in August resulted in a victory of the Left and Agrarian parties over the followers of the former Premier, Radoslavoff. A new Cabinet was formed in October, with M. Stambulowsky, the Agrarian leader, as Premier; M. Maggiaroff, Foreign Affairs; M. Kaloff, War; and M. Dimitreff, Interior. The importation of luxuries was prohibited, and the exporting of tobacco, attar of roses, lamb and goat skins, and wool was restricted. The largest wheat crop on record was harvested, valued at \$250,000,000. Some friction occurred in Thrace in September with both Greeks and Turks. On Nov. 4 M. Toncheff, Minister of Finance during the war, General Petroff, and about 200 others, including three generals and several members of the Sobranje, were arrested on charges of inhuman practices in the war. Municipal elections were carried by the Bolsheviks in December; rioting rose against the high cost of living and martial law was proclaimed.

Greece.—The year began for Greece with a strenuous controversy and some forcible conflicts with Turkey over the possession of Smyrna, which four months later, on May 16, ended in the occupation of that city by Greek forces, backed by the Allied fleet and under a mandate of the Peace Conference. Some friction with Italy occurred in northern Epirus in April and with Bulgaria in Thrace in August. A conspiracy of former royalist

officers to assassinate the Premier, Eleutherios Venizelos, overthrow the Government, and restore King Constantine was detected and thwarted in the latter part of November.

Jugo-Slavia.—The new Kingdom of Jugo-Slavia, comprising all the southern Slavs of Bosnia, Croatia, Dalmatia, Herzegovina, Montenegro, Serbia, and Slovenia, with Prince Alexander of Serbia as Regent, organized its Government at Belgrade at the beginning of January and had the first session of its Parliament there on March 1, though its permanent Constitution was not yet framed. On Feb. 17 the Montenegrin Ministry headed by Eugene Popovitch resigned, and it was succeeded by one under J. S. Plamenatz, the former Foreign Minister; on April 20 the National Assembly voted overwhelmingly in favor of union with Jugo-Slavia.

The Jugo-Slav Ministry headed by N. P. Pachitch resigned on Aug. 3; it was succeeded on Aug. 16 by one with Liouba Davidovitch, the Young Radical leader, as Premier; Anton Trombitch, Foreign Minister; General Stephan Hadjitch, Minister of War; and Vitomar Koratch, a Socialist, Minister of Social Policy and Health. A new army was formed, composed in equal numbers of Croats, Serbs, and Slovenes. The Davidovitch Ministry resigned on Sept. 15 because it regarded some of the provisions of the Peace Treaty with Austria as infringing upon the sovereignty of the kingdom and was therefore unwilling to sign that document. A new Cabinet was formed by M. Trikovitch, but the Prince Regent refused to accept it, and another was formed by M. Pavlovitch, a University professor.

Rumania.—Having suffered with peculiar severity in the war, and regarding herself as having been abandoned to her fate by the Allies, Rumania entered upon a course of defiant independence. At the middle of January she announced her annexation of Transylvania without waiting for the action of the Peace Conference. At the end of that month a widespread peasants' insurrection occurred, inspired by Russian Bolsheviks. The royal palace was attacked and the King was wounded. It took several weeks for the army, which had been

partially demobilized, to restore order. In March a similar rebellion occurred in Bessarabia, where a Soviet Republic was proclaimed, but it also was suppressed. At the end of May a decree was issued giving full citizenship and equal rights to the Jews, who had formerly suffered much oppression. The Crown Prince, Charles, in August renounced his rights and title to the succession, on account of his father's refusal to sanction his marriage with Zysis Lambrino, who was not of royal or noble blood. The Cabinet, under the veteran Prime Minister, J. J. C. Bratiano, refused to sign the Peace Treaty with Austria and on Sept. 10 resigned. A new Cabinet, under General Voltoianu was equally unwilling to sign, and when Parliament opened on Nov. 24 the treaty was still unsigned and Rumanian troops still occupied Hungary. On Dec. 4 a new Cabinet was formed which six days later authorized the signing of the Treaty.

Turkey.—In consequence of Allied demands that Turkey cease hostilities toward Armenians and Greeks, the Cabinet headed by Tewfik Pasha resigned at the end of January and was succeeded early in March by one in which the portfolios were distributed as follows: Grand Vizier and Minister of Foreign Affairs, Damah Pasha; Sheik-ul-Islam, Mustapha Sabri Effendi; War, Ahmed Abouk Pasha; Marine, Shakri Pasha; Interior, Djemed Pasha; Finance, Tewfik Bey; Justice, Ismail Ildke Bey; Instruction, Ali Kemal Bey; Posts and Telegraphs, Mehmed Ali Bey; Public Works, Avni Pasha; Agriculture, Edhem Bey; President of Council of State, Abd-ul Badu Effendi. On Feb. 11 began the trials of officials responsible for the Armenian massacres, and three days later Reshid Bey, one of the accused, committed suicide. Another, Kemal Bey, former Governor of Diarbekir, was hanged at Constantinople on April 12. Others were sentenced to imprisonment, while Enver Pasha, Djemel Pasha, and Talaat Bey, the chief criminals, were condemned to death but escaped through flight. Political and social disorders prevailed during the spring, with attempts to establish a Bolshevik *régime*. Early in July the Minister of Interior re-

signed, and a little later the entire Cabinet sought to follow him, but the Sultan would not accept their resignations. On Oct. 6, however, the seizure of Konieh in Asia Minor by the insurgent Mustapha Kemal Pasha caused the downfall of the Ministry, and a new one was formed, as follows: Grand Vizier, Ali Riza Pasha; Foreign Affairs, Mustapha Rechid Pasha; War, Djemal Pasha; Interior, Damad Sherif Pasha; Justice, Mustapha Bey; Public Works, Hamed Abouk Pasha; Agriculture, Hadi Pasha; Instruction, Said Bey. This Ministry was chiefly representative of the Young Turk faction. Mustapha Kemal Pasha, leader of the Nationalists, meanwhile increased the extent of his revolt, involving Broussa, Adrianople, and other cities in both Europe and Asia, organized a Government, and began negotiations for an alliance with the Russian Bolsheviks. Late in October, however, he agreed to support the Government of the Sultan.

OTHER EUROPEAN COUNTRIES

Belgium.—The revival of industry, both agricultural and manufacturing, was more marked in Belgium than in any other of the lately belligerent countries. The three Socialist members of the Cabinet, Vandervelde, Anseele, and Wauters, restrained all labor agitation and kept the country free from strikes. The rehabilitation of railroads was remarkable, the coal output was restored to almost normal conditions, and farmers and gardeners enjoyed great prosperity. At the general elections on Nov. 16 the Catholic Party in the Chamber was reduced from an overwhelming majority to a mere plurality, the parties standing: Catholics, 73; Socialists, 70; Liberals, 34; scattering, nine. In the Senate the Catholics elected 12, the Socialists 29, and the Liberals 30. The coalition Cabinet of M. Delacroix at once offered its resignation but was requested by the King to remain in office for a time. A little later it was confirmed in office, M. Poulet succeeding Baron de Broqueville as Minister of Railways, M. Ronkin succeeding M. Poulet as Minister of the Interior, and M. Hestree, Socialist, becoming Minister of Arts.

Denmark.—The Danish Cabinet headed by C. T. Zahle resigned on March 1, on account of the failure of its financial programme and the hostility of the Social Democrats under J. A. M. Stauning, who sought to revolutionize the Government by abolishing the Landsting, or Senate. No other leader being able to form a new Ministry, however, on March 18 M. Zahle withdrew the resignations and his Cabinet remained in office. On May 20 the Radical Party, supporting the Government, adopted resolutions opposing the incorporation in Denmark of any districts distinctively German.

Luxembourg.—An attempt at a revolution to depose the Grand Duchess Adelaide of Luxembourg for her supposed German sympathies was thwarted on Jan. 9 by the presence of General Pershing and a body of American troops, but the next day a Republic was proclaimed, and the Grand Duchess indicated her willingness to abdicate if the people desired her to do so. A few days later she formally renounced the throne. Thereupon the Prime Minister, M. Alweiss, called Parliament together and had it elect Princess Charlotte Aldegonde, the next oldest of Adelaide's five sisters, to be Grand Duchess in her place, and on Jan. 15 Princess Charlotte took the oath of office and was formally installed. Parliament on March 18 voted for a plebiscite, which was held on Sept. 28, women as well as men voting. The result was a three to one vote in favor of retaining Princess Charlotte as Grand Duchess and establishing an economic alliance with France.

Netherlands.—Plots were formed by Germans, Russian Bolsheviks, and disaffected Dutchmen for a revolutionary uprising in Holland on Jan. 20, but they came to nothing. A loan of \$160,000,000 was successfully issued in June to cover a deficit in the budget. Late in November Bolshevik emissaries again became troublesome, and strenuous action was taken to expel and bar them from the country. At the end of the year Jonkheer Byleveld, Minister of Marine, and Alting van Geusan, Minister of War, resigned because of reduced appropriations for their departments.

III. FOREIGN HISTORY

Norway.—The Norwegian Cabinet headed by Gunnar Knudsen resigned on Feb. 5, being no longer able to command a majority in Parliament. On Oct. 6 a national plebiscite decided by a vote of 428,455 to 284,137 to prohibit all traffic in whiskey, brandy, and other distilled liquors. On Nov. 21 the Supreme Council of the Peace Conference gave Norway political suzerainty over the Spitzbergen Archipelago. The Parliamentary Nobel Committee decided not to award Nobel Peace Prizes for 1918 and 1919.

Portugal.—Bolshevist agitators under Russian and German patronage attempted a revolution in Portugal on Jan. 14 but were suppressed. There followed on Jan. 20 a Royalist uprising at Oporto under Paiya Conceiro, who proclaimed the restoration of the former King Manoel. Military operations followed, Oporto was bombarded by Government forces, and on January 25 the insurgents were scattered and demoralized. In the northern provinces the Monarchists still held out and organized a Ministry with Senhor Conceiro at its head. But the failure of Manoel to leave London and place himself at the head of the movement discouraged his followers, and by the middle of February the revolt was practically at an end. President Cato y Castro offered his resignation on June 4, but Congress declined to accept it, and he remained in office. A new Cabinet was formed on June 28 with Senhor Cardoso as Prime Minister. A general election was held on Aug. 7, at which Antonio José Almeida was elected President of the Republic, and he was formally inaugurated on Oct. 5.

Spain.—Agitations at Barcelona in favor of autonomy for Catalonia became so ominous in January that the Spanish Government established martial law in that province. On Feb. 24 a general strike began in Barcelona; three days later the Premier, Count Romanones, suspended the Cortes and a month later proclaimed martial law throughout Spain. An attempt was made to check a general strike by mustering the strikers into the army, but this was not greatly successful, and the strike was ended late in March by a practical yielding of the Government to the "syndical-

ists" of Barcelona. Meanwhile, the Cabinet resigned at the end of February but remained in office until the first of April at the request of the King. On April 15 a new Cabinet was announced, with Antonio Maura, a Conservative and former Premier, at its head, and with Manuel Gonzales Hontoria Minister of Foreign Affairs; Señor Matamala, Justice; Señor Gorcecha, Interior; Señor Juan de la Cierva, Finance; Señor Silvio, Marine; Admiral Miranda, Marine. General elections were held on June 1, with the result that the Government or Conservative Party secured 215 of the 408 seats in the Chamber and the Liberals 129. The Maura Cabinet resigned on July 16, and four days later its successor was announced, as follows: Prime Minister, Joaquin Sanchez Toca, who had been the King's confidential adviser; Foreign Affairs, Marquis De Lema; Justice, Señor Pascual y Amat; Finance, Count De Bugallal; Interior, Señor Burgos; War, General Covaro; Marine, Admiral Flores; Public Works, Señor Calderon; Instruction, Señor Parado y Palacios; Provisions, Marquis de Mochales. In October a successful expedition operated against the bandit Raisuli in Morocco. The Congress of Spanish Employers at Barcelona voted a universal lockout of all workmen on Nov. 4. Despite protests and efforts of the Government to compose matters, this order was strictly fulfilled in Barcelona and in many other parts of Spain, and for the rest of the year lockouts and strikes widely prevailed. Persistent opposition was made in the Cortes to the financial policy of the Government, the leader of the attacks being Señor Juan de la Cierva, formerly Minister of War in the Maura Cabinet. General Covaro, Minister of War, resigned on Dec. 6 and so did all his colleagues; and after several other leaders had tried in vain, on Dec. 11 Manuel Alende Salazar, formerly Foreign Minister, formed a new Cabinet with himself as Prime Minister; Foreign Affairs, Marquis de Lema; Finance, Count de Bugallal; Justice, Señor Garnica; Public Works, Señor Gimeno; War, General Villalba; Marine, Admiral Flores; Interior, Fernandez Prida; Instruction, Señor Rivas.

Sweden.—The Swedish Cabinet of October, 1917, remained in office during the year; with Nils Eden, Premier; J. Hellner, Foreign Affairs; Y. E. Loefgren, Justice; P. A. V. Schotte, Interior; F. W. Thorsson, Finance; Erik Palmstierna, Marine; K. V. Ryden, Education; P. A. Petersson, Agriculture; E. A. Nilsson, War; and A. Petren and B. O. Unden, without portfolios. The ministers are equally divided between the Liberal and Socialist parties.

Switzerland.—Bolsheviks under Russian direction undertook to make a revolution and to establish a Soviet Government in March but failed. In May the country voted to levy an income tax until half of the war debt was paid. On Oct. 25 and 26 general elections were held under a proportional system providing for minority representation. The result was a National Council containing 63 Radical Democrats; 42 Catholic Conservatives; 39 Socialists; 27 Peasants; nine Liberal Democrats; four Grutleins; one Progressive Bourgeois; and one Evangelist.

ASIA

Afghanistan.—Habibullah Khan, Ameer of Afghanistan, was murdered in camp at Laghman on Feb. 20, and the succession was claimed by his brother, Nasrullah. But Habibullah's third son, Amanullah Khan, challenged this claim, charged Nasrullah with implication in the murder and imprisoned him, and himself assumed the crown. Later it was charged by British observers that Amanullah had been as deeply involved in the murder as Nasrullah. The new Ameer began his reign with promises to continue his father's policy of friendly relations with British India, but soon changed his course, under Russian Bolshevik incitements, and during the summer serious hostilities prevailed in the region of the Khyber Pass (see also *The British Empire, supra*).

Armenia.—Famine and continued raids and outrages by Kurds made up much of the history of Armenia and prevented the development of a strong national Government. President Khattian in September told American Re-

lief representatives that the remnant of the people was in danger of extermination and needed protecting troops more than food.

China.—The old feud between Northern and Southern China was acute early in the year, and in February a peace conference was held at Shanghai between representatives of the rival Governments which after a protracted deadlock somewhat ameliorated the situation. National resentment at the action of the Paris Peace Conference in confirming Japan in possession of Tsing-tau (see II, *International Relations*) caused a drawing together of the two factions in insistence upon rejection of the Treaty. On May 16 the Cabinet resigned, but the President refused to accept the resignation. A month later, however, popular agitation against Japan and demands for the restoration of Shantung to China drove both the Cabinet and the President to resign. Parliament declined to accept the President's resignation, thus virtually giving him a vote of confidence, and the Cabinet was persuaded to remain in office for a time. In October the chieftains of Outer Mongolia expressed a desire to renounce the autonomy which Russia years before had induced them to proclaim and to be reunited with China, and their offer was accepted. In November increasing friction with Japan culminated in several violent affrays.

Hedjaz.—The Holy City of El Medinah, the last to hold out against the Government of King Hussein of the Hedjaz, finally capitulated on June 13, and formal entry was made and possession was taken by the Emir Abdullah in the name of the King.

Japan.—Korean affairs largely dominated the domestic interests of the Japanese Empire during the year. Early in March a Korean declaration of independence was issued, and widespread attempts were made to give it practical effect. Insurrections occurred at nearly a hundred places, and much bloodshed and loss of life ensued. An attempt was made to organize a Provisional Government at Seoul, but it was soon suppressed. The undisguised sympathy of American missionaries with the Koreans led to Japanese hostility toward them and toward the mission churches, and one

III. FOREIGN HISTORY

American preacher was arrested and imprisoned for permitting the church to be used as a meeting place for anti-Japanese meetings. On May 15 the Japanese Government began to plan radical revision of the Korean Government, to which the Koreans replied a fortnight later by promulgating the constitution of the Korean Republic. Finally, on Aug. 19 an Imperial rescript was issued abolishing the military administration in Korea, introducing a civil government in its place, and declaring the purpose of placing Korea on precisely the same footing as the provinces of Japan itself. Baron Saito was appointed Governor-General, and Mr. Midzuno Director-General of Administration, Baron Saito, on going to his post at the beginning of September, promised many reforms in government. On his arrival at Seoul, however, great hostility was shown toward him, and a bomb was exploded under his carriage, from which he escaped. This outrage was found to be the result of a widespread conspiracy, and in consequence of it a state of siege was proclaimed in the city.

Meantime political agitation was rife at Tokio, where Socialist and labor organizations were so active in

July as to require the attention of the police. On Sept. 15 a Reconstruction Alliance Party put forward a programme of radical changes in the political, social, and industrial system. Later widespread dissatisfaction with the terms of the Treaty of Versailles led to severe criticism of the Ministry.

Kurdistan.—It was announced in December that a "Kingdom of Kurdistan," lying between Mesopotamia and Persia, had been proclaimed, with Enver Pasha, the former Turkish War Minister, under sentence of death, as its King.

Persia.—Much dissatisfaction was expressed in Persia at the treaty with Great Britain (see II, *International Relations*), which was regarded as compromising the independence of the country, but no change of Government or of policy was effected. In October and November the Shah travelled in Europe and spent much time in England.

Syria.—An agreement was reached between Great Britain and France on Sept. 17 for the delimitation of their respective spheres of influence in Syria and the adjacent lands, but no permanent governmental status was formed for the country.

THE EUROPEAN WAR

A. GIBSON

Aftermath of the Great War.—The armistice of November, 1918, did not end hostilities in Europe. Out of the territorial readjustments that followed the collapse of the Central Powers and out of the Russian situation arose a number of minor conflicts that complicated and delayed the restoration of general peace. Some of these small wars brought to the Peace Conference international problems of grave difficulty. In this aspect they are discussed elsewhere (see II, *International Relations*). The following pages attempt briefly to summarize only the military operations involved in the hostilities that arose out of the great conflict. More details will be found in XXXI, *Chronology of the European War*.

Jugo-Slavia and Austria.—Early in May hostilities broke out between the kingdom of the Serbs, Croats, and Slovenes and German Austria over the

boundary running across the former Styria and Carinthia. Some fighting extended over several weeks; it was finally ended by appointment of an inter-Allied commission which effected an armistice and settled the dispute.

Rumania, Czecho-Slovakia, and Hungary.—Early in the year Bela Kun's "Red" Hungarians were considered by the Rumanians to have violated the armistice line, drawn through Hungary, separating Hungarian and Rumanian troops. The Hungarians thereupon advanced to the general line of the River Theiss, where they halted in compliance with orders from the Peace Conference. The Rumanian lines were greatly weakened by detachments for the Besarabian front. But the Hungarians having similarly been considered by the Czecho-Slovaks to have violated the armistice line towards Czecho-Slovakia, the Czecho-Slovaks advanced

upon Hungary. The Czecho-Slovaks, however, were being badly handled by the Hungarians, who were greatly superior in artillery, when the Peace Conference ordered the Hungarians to halt and withdraw. The Hungarians, after some parleying, withdrew early in July. In this campaign against Czecho-Slovakia the Hungarians showed good mettle and morale, but as soon as they were ordered to withdraw, demoralization set in. Bela Kun, however, decided to make a decisive campaign against the Rumanians, with a view, probably, to cutting his way through to a junction with the Russian Bolsheviks. He began his advance on July 20, crossing the Theiss at several points. He had some success at the start, but the Rumanians quickly counterattacked. Bela Kun's army completely collapsed, and the Rumanians entered Budapest on Aug. 4 (see also III, *Hungary*). They withdrew only after long defiance of the Peace Conference (see III, *International Relations*).

Rumania and Soviet Russia.—The Russian Bolsheviks hoped to get across the Dniester, make an easy conquest of Bessarabia, Bolshevize and conquer Rumania, and then push on and make junction with the Hungarians and so carry the Red Terror into central Europe. But the Rumanians held them on the general line of the Dniester. The Rumanians had crossed the Dniester and were preparing to join Denikin's campaign in southwest Russia (see *infra*), but due to some misunderstanding the Allies withdrew their troops to their frontiers.

Rumania and East Galicians (West Ukrainians).—The Rumanians co-operated to a minor extent with the Poles (see *infra*) in southeastern Galicia against the effort of the Ruthenians or Ukrainian Galicians to set up a state which should be independent or a part of a great independent Ukrainian state. The Rumanians were successful, but have now left the country. A fragment of the East Galician army was left in the Ukraine proper, fighting alongside Petlura (see *infra*).

Poland and Germany.—There has been friction ever since the armistice along the several armistice lines in East and West Prussia, Upper Silesia,

etc., wherever German and Polish forces faced each other. The most delicate situation was in Upper Silesia. The Polish population in the plebiscite territory rose in revolt and was suppressed by the German military with great severity. The several plebiscites in East and West Prussia and Upper Silesia will require the presence of Allied troops. The Polish-German situation contains great possibilities for future trouble.

Poland and Czecho-Slovakia.—There is a little section of territory about Teschen in former Austrian Silesia (southwest of Cracow) which contains fuel deposits necessary to the industries of both Poland and Czecho-Slovakia. The population is predominantly Polish, though historically its affiliations are with Bohemia. The two countries came to blows over the matter of possession of this territory, but were persuaded to stop and argue. They argued to no effect for many months, and the Supreme Council finally took the matter in hand. Teschen is to belong politically to Poland, but special arrangements are to insure Czecho-Slovakia full economic benefits.

Poland and Ukrainia.—The Ukrainians in East Galicia, attempting to set up an independent state or a part of a great Ukrainian state, put up a fight which lasted over many months, interspersed with armistices and breaches thereof. Finally the Poles drove the Ukrainian forces out. Apparently the Poles are to receive Eastern Galicia. The Western Ukrainian armies were largely officered by Germans, who backed the project for an independent Eastern Galicia. The East Galicians were helped to some extent by their brethren of the Ukraine proper, led by Petlura, but Petlura failed and returned home.

Letts and Soviet Russia.—The Letts have been fighting the Bolsheviks all the year. The struggle between the Letts and their neighbors the Esthonians and the Bolsheviks, with its curious complications caused by the presence of Von der Goltz and the Germans in Latvia, is of extreme interest. The Bolsheviks are now practically cleared out of Latvia, but the Letts have to guard their frontiers. Latvia is considering overtures

of peace from Soviet Russia. Soviet Russia offers acknowledgement of Latvian independence.

Letts and Germans.—The Germans drove the Bolsheviks out of Latvia, but would not, prior to July 1, allow the Letts to form a native army. Since July 1 the Letts have formed an army of about 20,000 men, with English help. Von der Goltz, long ordered to return with his troops to Germany, delayed evacuation under one pretext or another. He finally claimed that one half of his army had returned to Germany, the other half having deserted and joined the army of one Bermont (see *infra*). This army was called the First West Russian Volunteer Corps, there being another smaller (Second) West Russian Volunteer Corps. Bermont's corps is reported to have been made up of 40,000 Germans and 9,000 Russians. In the fall it attacked Riga (Latvia) and the combined Lettish and Esthonian troops about Riga. The attack connects itself with the plans of Von der Goltz, which (many competent observers assume) contemplated (roughly speaking): (1) ultimate invasion of Russia and reinstatement of the reactionary power there; (2) a consequent *coup* in Germany which would bring the reactionaries in Germany back to power; (3) alliance of reactionary Russia and reactionary Germany.

The Letts and Esthonians hate the Bolsheviks, but hate the prospect of a new Czarist régime still more. So they resisted, and to all appearance successfully resisted, the attack by Bermont's troops. Probably about equal numbers were engaged on the two sides. Bermont's immediate object was to get a strangle hold on Latvia, pending further developments.

Letts and Baltic Barons.—The Baltic barons are the descendants of the Knights of the Sword and Teutonic Knights who conquered the Baltic States in the 13th century. Their descendants and those of their Teutonic followers constitute a special caste in the Baltic provinces called the Balts. Before the Great War the Baltic barons owned the greater part of the land and still dominated the country. In connection with recent events they formed a militia of their

own called the Baltic Landwehr. This militia backed Von der Goltz in his design. But the Allies finally caused a reorganization of the Landwehr, a purged regiment of which was of late serving on the Bolshevik front under an English Colonel. They are pro-German, but contrary to what was feared, have not made common cause with Bermont. They have done some good fighting in beating off the Bolshevik invasion, but their efforts have also been directed toward giving Latvia and Esthonia to the Germans.

Esthonians and Soviet Russia.—The Esthonians are an heroic people. After the armistice they vainly asked the Germans to give them back the arms which the Germans took away, when after Brest-Litovsk, they occupied Esthonia. However, the Esths (who are of the Finnish branch of the Mongolian race) got some arms from their kinsmen the Finns, and in a very short time cleared their country of the invading hordes, and they have kept it clear ever since. They are chiefly concerned about their independence. They want to quit fighting and recover financially. But they owe almost everything to the English (arms, food, money), and they could not refuse to aid their benefactors by joining in operations against Petrograd (see *infra*). They have coöperated in the attacks on Petrograd, but only halfheartedly. However, probably but for their help Yudenich would have been utterly defeated. The Esthonians are substantially carrying on merely a defensive war, the weakness of their political frontiers requiring that the war be carried somewhat into the enemy's territory. They, like the Letts, are considering peace overtures from Lenine, involving acknowledgement of their independence. They, much more than the Letts or the Allies, have blocked the designs of Von der Goltz, and if a union of reactionary Russia and reactionary Germany should be averted, that consummation will be due very largely to the Esthonians.

Lithuania and Soviet Russia.—Early in the year marauding Bolshevik bands swept into Lithuanian Kovno with the usual circumstance of rape and pillage. The Lithuanians and the Germans who were in occupa-

tion did most of the evicting then, and later the Poles pretty well cleared the Bolsheviks out of what is to be the new Lithuanian state, sweeping past Vilna and Vilkmir to Dvinsk and the Dvina.

Finnish and Soviet Russia.—The Finnish Government has nominally been at peace with Soviet Russia. But a powerful section in Finland, headed by General Mannerheim, favored Finnish participation in the operations against Petrograd and seizure of those portions of Russia east of Finland (Olonetz, Karelia, etc.) inhabited by a population of Finnish race. The Socialists successfully blocked Mannerheim's efforts. But Finnish volunteers have operated beyond the border, chiefly east of Lake Ladoga. On the whole these operations have been a failure.

Germans and Bolsheviks in the Baltic Region.—Pursuant to a negative provision in Art. XIII of the armistice terms (A. Y. B., 1919, p. 119), and, it is believed, as a consequence of appeals of the Letts and special arrangements in renewals of the armistice at Spa, German troops remained in the Baltic provinces after the armistice. The regular German troops were reduced to a mere handful, but volunteers brought the number up to perhaps 60,000 in August. In the meantime the Germans cleared the Bolsheviks out of Latvia (the Estonians took care of themselves). So much valuable service did the Germans perform. However, it finally transpired that their intentions did not seem to contemplate the good of the Baltic peoples. They tried in April by a *coup* at Libau to suppress the Latvian patriots. In July the evacuation of the Baltic States by German troops was ordered by the Allies. In October Von der Goltz announced that the evacuation was complete. He made this announcement on the eve of his return to Berlin (whither he had been ordered back months before). Only a portion of the Germans had been evacuated. The rest still remained in Courland as the army of Bermont, considered the army of reaction.

The "All-Russians" and the Russian Murmuvists.—*Murmansk Region.*—In the Murmansk region the White

Russians with Allied contingents (and only through the help of the Allied contingents under General Maynard) worked their way along the Murmansk Railroad against almost unexampled difficulties to the middle of the west coast of Lake Onega. Then Great Britain ordered the evacuation of British troops. The other Allied contingents also went. The Bolsheviks are now gradually advancing.

Archangel Region.—In the Archangel region also the Allied contingents (especially British) made possible advances along the Onega River, along the Vologda Railroad, and down the Dvina and its tributary the Vaga. A momentary *liaison* was made by a detachment on skis with a similar detachment from Kolchak, when Kolchak was making his great advance (see *infra*). General Ironsides hoped to push to Kotlas and there effect permanent junction with Kolchak. But the difficulties of transport made advance slow, and, moreover, had Ironsides reached Kotlas, Kolchak would not have been there. Since the British evacuated Archangel, the White Russians have been unexpectedly successful, but this may be largely attributed to withdrawal of Bolsheviks to other fronts.

Ural Front.—Admiral Kolchak's advance in Siberia in the spring seemed to go successfully, when suddenly the offensive collapsed. Communications were too long; the line spread out too thin; the service of supply was poor; there were not sufficient reserves; the generalship seems to have been very inferior. At all events the offensive was quickly transformed into an undignified retreat. But about that time the Poles and Denikin were dangerously pressing the Bolsheviks on their fronts, and the Bolsheviks had to withdraw many of their best troops from the Urals. Kolchak rallied and held and, after a little, counterattacked, even reached the Tobol and Tobolsk. But he did not get his main body across the Tobol, and, just as he had selected pleasant winter quarters, the Bolsheviks counterattacked furiously. The Bolsheviks at the end of the year were across the Ishim and in Omsk. (See also *Russia, supra*.)

South Russia.—The story of Denikin furnishes one of the most inspir-

ing chapters of human history. Not long before the armistice his little army of Don Cossacks had been reduced to some 4,000 refugees. Denikin is considered by many as the great hope of anti-Bolshevik Russia. His line is difficult to define exactly, but roughly was Odessa—Kief—Chernigof—Kursk—Voronezh—Tzaritzin. It was largely a fight between him and the Bolsheviks for the railroads. Parties of Denikin's cavalry have pushed out as far as Orel, and a kind of precarious *liaison* was established with the Poles at Gomel. Fighting of the fiercest character late in the year was going on along the entire front, near Kursk, near Chernigof, at Kief, near Voronezh, in the vicinity of Tzaritzin, and Denikin was dangerously hard pressed. Denikin does not seem to have been as good a statesman as he is a soldier. His conduct in the Ukraine alienated many people. He drove Petlura into opposition. Petlura even declared war on him, and, though not successful in joined battle, he was supported by peasant uprisings in Denikin's rear and on his flanks. Petlura was a most serious embarrassment to Denikin and deflected from their true objective many troops. Moreover, there was a serious uprising against Denikin among the mountaineers of the Caucasus.

British and Soviet Russia.—The British have rendered great assistance of every kind to the Murmansk and

Archangel regions. They equipped and trained the Esths and the Letts. They supplied Denikin. They supplied Kolchak. They have done more for Russia than all the other Allies combined. But they have not done enough to ensure success. They now have practically no troops in Russia (a few in Batum and perhaps a handful at Kissnovodsk).

Poles and Soviet Russia.—The Poles have conquered about as much territory in the direction of Minsk and Dvinsk as they propose to take, but still they would like complete control of the Dvinsk-Vitebsk-Smolensk railway, with possession (at least temporary) of those towns. The fighting on this front has been fierce at times, generally in favor of the Poles; but the Bolsheviks have always come back, and they were coming back strongly at the end of the year. The Poles were in a very bad way for ammunition and clothes—indeed, in a desperate way.

Greeks and Turks in Asia Minor.—The Greeks were permitted by the Supreme Council to occupy Smyrna and the adjacent region. They did so and extended their occupation beyond the allotted district. They have been accused of brutalities committed in retaliation for Turkish brutalities. The Greek occupation was met by guerilla resistance, and resulted in consolidating the Nationalist movement among the Turks (see also *Turkey, supra*).

STATISTICAL SUMMARY OF THE EUROPEAN WAR

A. GIBSON

The statistical summary of the Great War contained in the following pages is based, so far as possible, on official sources. The United States, Great Britain, France, and a few of the other belligerents, kept very accurate records. For others, such as Russia and Serbia, the best figures now obtainable are largely estimates. It must be remembered also in dealing with money values that the depreciation of the currency in several countries and the fluctuations in the rate of exchange make transpositions into terms of dollars very difficult. For the figures of the participation of the United States, many unpublished reports and records of the War Depart-

ment have been drawn upon, among which may be mentioned the monthly personnel report, "Strength of the Army," and the "Weekly Statistical Report" prepared by the Statistics Branch of the General Staff. The chief printed sources are the following:

- AYERS, L. P.—*The War With Germany*. (Washington, 1919.)
 CROWELL, Benedict.—*American Munitions, 1917-1918*. (Washington, 1919.)
 HASELTINE, W. E.—*The Services of Supply of the American Expeditionary Forces, a Statistical Summary*. Prepared in the offices of the Statistics Branch of the General Staff, with the cooperation of Lieut.-Col. A. W. Richardson.

III. FOREIGN HISTORY

DECLARATIONS OF WAR AND RATIFICATIONS OF PEACE TREATY

	By Central Powers				Against Central Powers				Duration of War to Nov. 11, 1918			Ratification of Peace Treaty
	Germany	Austria-Hungary	Bulgaria	Turkey ¹	Germany	Austria-Hungary	Bulgaria	Turkey	Yrs.	Mo.	D.	
Serbia	Aug. 1, '14	July 28, '14	Oct. 14, '15		Aug. 6, '14		Oct. 19, '15		4	3	14	
Russia	Aug. 3, '14	Aug. 6, '14			Aug. 3, '14	Aug. 12, '14	Oct. 16, '15		3	7	3	Oct. 13, 1919
France	Aug. 4, '14	Aug. 28, '14			Aug. 4, '14	Aug. 13, '14	Oct. 15, '15	Nov. 5, '14	4	3	8	Sept. 15, '19
Belgium					Aug. 23, '14				4	3	7	Oct. 10, 1919
Gt. Britain		Aug. 9, '14			Nov. 23, '14				4	3	5	
Montenegro		Aug. 27, '14			May 19, '15 ³				4	2	19	Oct. 27, 1919
Japan	March 9, '16				Aug. 28, '16	May 24, '15	Oct. 19, '15	Aug. 21, '15	3	11	19	
Portugal					June 6, '15 ⁴	Aug. 27, '16			3	5	19	Oct. 6, 1919
Italy					Nov. 23, '16		Nov. 23, '16		3	5	4	
San Marino					July 2, '17		July 2, '17		3	6	10	
Rumania	Aug. 28, '16		Sept. 1, '16	Aug. 29, '16					1	11	18	
Greece					Nov. 23, '16				1	1	1	
Provisional Government of Alexandria					July 2, '17				1	1	1	
U. S.					April 6, '17	Dec. 7, '17			1	7	5	Jan. 8, 1920
Panama					April 7, '17	Dec. 10, '17			1	7	4	Dec. 17, 1919
Cuba					April 7, '17	Dec. 16, '17			1	7	3	Sept. 2, 1919
Siam					July 22, '17	July 22, '17			1	1	8	Jan. 3, 1920
Liberia					Aug. 4, '17	Aug. 14, '17			1	3	23	
China					Aug. 14, '17	Aug. 14, '17			1	1	1	
Brazil					Oct. 26, '17				1	0	16	Nov. 11, 1919
Guatemala					April 21, '18				1	0	16	Oct. 2, 1919
Nicaragua					May 6, '18	May 6, '18			1	0	16	
Haiti					July 12, '18				1	6	5	
Honduras					July 19, '18				3	30	23	

¹ Holy War (Turkey vs. Allies), Nov. 11, 1914. ² Intervened as ally of England. ³ Military aid granted. ⁴ Against Central Powers.

III. FOREIGN HISTORY

POPULATIONS, MOBILIZATIONS, AND CASUALTIES

	Pre-war Population, Thousands	Mobilized	Casualties			
			Dead	Wounded	Prisoners or Missing	Total
United States..	98,800	4,764,071	115,934	205,690	6,089	327,713
British Empire..	440,000	7,500,000	772,065	2,037,325	280,367	3,089,757
France	39,840	7,500,000	1,385,300	2,675,000	446,300	4,506,600
Italy	36,000	5,500,000	460,000	947,000	1,393,000	2,800,000
Belgium	7,645	267,000	20,000	60,000	10,000	90,000
Russia	178,379	12,000,000	1,700,000	4,950,000	2,500,000	9,150,000
Japan	54,000	800,000	300	907	3	1,210
Rumania	7,508	750,000	200,000	120,000	80,000	400,000
Serbia	3,094	707,343	322,000	28,000	100,000	450,000
Montenegro	437	50,000	3,000	10,000	7,000	20,000
Greece	4,821	230,000	15,000	40,000	45,000	100,000
Portugal	6,100	100,000	4,000	15,000	200	19,200
Total	876,624	40,168,414	4,997,599	11,088,922	4,867,959	20,954,480
Germany	68,166	11,000,000	1,611,104	3,683,143	772,522	6,066,769
Austria-Hungary	61,039	6,500,000	800,000	3,200,000	1,211,000	5,211,000
Bulgaria	4,400	400,000	201,224	152,399	10,825	364,448
Turkey	21,274	1,600,000	300,000	570,000	130,000	1,000,000
Total	154,919	19,500,000	2,912,328	7,605,542	2,124,347	12,642,217
Grand total.....	1,031,543	59,668,414	7,909,927	18,694,464	6,992,306	33,596,697

NATIONAL WEALTH AND PUBLIC DEBTS, IN BILLIONS

	National Wealth	Pre- War Debt	Post- War Debt
Italy	\$16	\$2.9	\$11
France	67	6.6	27
Germany	78	1.2	39
Great Britain...	85	3.5	34
United States...	220	1.3	24

COMPARATIVE RIFLE STRENGTH, 1918

The fighting power of an army depends largely upon the number and quality of its infantry. About one-third of an infantry division is armed with special weapons, and two-thirds with the rifle. This last is its rifle strength.

	Allies		Germans
	Without Americans	With Americans	
Apr. 1	1,296,000	1,346,000	1,569,000
May 1	1,247,000	1,312,000	1,600,000
July 1	1,210,000	1,360,000	1,639,350
June 1	1,199,000	1,299,000	
Aug. 1	1,222,000	1,472,000	1,412,160
Sept. 1	1,182,000	1,542,000	1,395,485
Oct. 1	1,147,000	1,537,000	1,319,000
Nov. 1	1,119,000	1,483,000	1,187,000

ALLIES' SMALL-ARMS PRODUCTION, APRIL 6, 1917, TO NOV. 11, 1918

	Ma- chine Guns and Ma- chine Rifles	Rifles	Rifle and Machine- Gun Am- munition rounds
Gt. Britain..	181,404	1,971,764	3,486,127,000
France	229,238	1,416,056	2,983,675,000
U. S.....	181,662	2,506,742	2,879,148,000

COMPARATIVE STRENGTH OF BEL- LIGERENTS ON WESTERN FRONT, NOV. 11, 1918

	Ration Strength ¹	Guns Organ- ized in Bat- teries	Battle Air- planes
Americans	1,950,000	3,008	740
British ...	1,718,000 ²	6,993	1,758
Belgians ..	200,000 ³	.....	153
French ...	2,559,000	11,638	3,321
Italians ..	.....	7,709	812
Germans ..	3,562,180	.....	2,730
Austrians	.....	.....	622

¹ Entire army personnel, whether com-
batant or non-combatant. ² With Portu-
guese. ³ With Italians.

III. FOREIGN HISTORY

COMPARATIVE ARMAMENT OF DIVISIONS

	Infantry Rifles	Automatic Rifles	Machine Guns	3-in. or 75 mm. Guns	6-in. or 155 mm. Howitzers	Trench Mortars
American	12,000	768	224	48	24	12
British	11,448	200	64	36	12	40
French	7,000	432	72	36	12	..
German	8,100	216	1,108	36	28	12

STATUS OF DIVISIONS, NOV. 11, 1918

	Headquarters	In Line			In Reserve			Total Available Divisions
		Fresh	Tired	Total	Fresh	Tired	Total	
American 1	Chaumont ...	4	12	16	3	11	14	30
French	Senlis	19	17	36	19	53	72	108
British	Montreuil ...	5	24	29	6	29	35	64
Belgian	Hondschoote .	3	1	4	2	1	3	7
Italian		1	0	1	0	1	1	2
Portuguese		0	0	0	2	0	2	2
Total Allies..		32	54	86	32	95	127	213
German	Spa.	47	97	144	2	39	41	185

1 American divisions were more than twice as large as any others.

SUMMARY TOTALS OF AMERICAN PARTICIPATION

Troops seeing active service in front line.....	1,390,000	Standard gauge railroad built, miles	1,002
Divisions seeing active combat service	29	Standard gauge locomotives received to May 1, 1919	1,867
Days of battle.....	200	Standard gauge cars received to May 1, 1919.	19,697
Major operations	13	Covered storage space constructed and acquired, sq. ft.	25,961,144
Miles of front held, October, 1918	101	Barracks constructed (16,000 buildings), miles..	300
Battle advance, all divisions, miles	485	Motor vehicles received to May 1, 1919.....	128,500
Prisoners captured	49,969	Lumber produced to May 1, 1919, board ft.....	217,884,337
Artillery captured	1,378	Food consumed to May 1, 1919, lbs.	2,306,675,768
Trench mortars captured.	708	Coal produced to May 1, 1919, tons	1,953,777
Machine guns captured...	9,650	Gasoline consumed to May 1, 1919, gal.	93,290,628
Killed	50,000	Roads maintained by A. E. F., miles.....	2,500
Total troops arrived in A. E. F. to March 1, 1919.	2,084,475	Barbed wire used, miles..	34,000
Man days in the A. E. F. to Sept. 1, 1918.....	615,000,000	Animals received in A. E. F. to May 1, 1919.....	243,360
Man miles on sea and in A. E. F.	14,000,000,000	Normal hospital space provided, beds	223,256
Total casualties in A. E. F. to June 3, 1919.....	290,334	Emergency hospital space provided, beds	299,835
Total deaths in A. E. F. to June 3, 1919.....	78,555	Wire in A. E. F. Signal Corps lines, miles....	134,250
Supplies received from all sources to May 1, 1919, tons	13,922,765	Airplanes received in A. E. F. to Jan 1, 1919...	6,624
Supplies received per man per day to Nov. 30, 1918, lbs.	58.9		
Ton miles all supplies on sea and in A. E. F....	25,000,000,000		
Tonnage discharged in France to May 1, 1919.	1,332,827		

III. FOREIGN HISTORY

MILES OF WESTERN FRONT HELD BY ALLIES, 1918

	Americans	British	French	Belgians	Total
January 31	6	911	323	23	468
February 28	16	116	313	23	468
March 21	17	116	312	23	468
April 10	31	92	348	23	494
May 10	34	83	358	23	498
June 10	36	83	388	23	530
July 10	62	92	353	23	530
August 10	78	93	278	23	472
September 10	90	87	241	23	449
October 10	100	83	244	15	442
November 11	83	70	220	25	398

Distances do not show proportionate effort in holding line, *e. g.*, a mile on the British front cost more effort than the whole distance from Toul to Switzerland. At the signing of the armistice the Belgians held the northern end, assisted by the French Sixth Army and the 37th and 91st American divisions. Next came the British, with the 27th and 30th American divisions in reserve. With the French Third, Fourth, and Fifth Armies were brigaded the 59th and 370th American infantry regiments. The American First and Second Armies came next, and extending on to Switzerland were the Seventh and Eighth French Armies. Assisting them were the 157th, 371st, 372d, 161st, and 369th American infantry regiments. Of the American divisions not in line, the 41st and 83d were depot divisions; the 31st, 34th, 38th, 39th, 76th, 84th, and 86th were "skeletonized" to provide replacements; the 8th and 93d never fully arrived in France; and the 87th was the Service of Supplies division.

AVERAGE STRENGTH OF DIVISIONS, 1918

	Jan. 1 to Mar. 21	Mar. 21 to July 18	July 18 to Nov. 11
American ...	27,106	25,824	23,700
British	13,000	12,000	10,500
French	12,500	11,500	10,300
German	14,900	12,000	10,000

THIRTEEN MAJOR OPERATIONS IN WHICH AMERICANS TOOK PART

	Approximate Number of Americans Engaged
WEST FRONT, CAMPAIGN OF 1917:	
Cambrai, Nov. 20 to Dec. 4	2,500
WEST FRONT, CAMPAIGN OF 1918:	
<i>German Offensives, March 21 to July 18:</i>	
Somme, March 21 to April 6	2,200
Lys, April 9 to 27	500
Aisne, May 27 to June 5	27,500
Noyon-Montdidier, June 9 to 15	27,000
Champagne-Marne, July 15 to 18	85,000
<i>Allied Offensives, July 18 to Nov. 11:</i>	
Aisne-Marne, July 18 to Aug. 6	270,000
Somme, Aug. 8 to Nov. 11	54,000
Oise-Aisne, Aug. 18 to Nov. 11	85,000
Ypres-Lys, Aug. 19 to Nov. 11	108,000
St. Mihiel, Sept. 12 to 16	550,000
Meuse-Argonne, Sept. 20 to Nov. 11	1,200,000
ITALIAN FRONT, CAMPAIGN OF 1918:	
Vittorio-Veneto, Oct. 24 to Nov. 4	1,200

WAR DEPARTMENT APPROPRIATIONS

	Amount Appropriated	Disbursed to Oct. 31, 1918		Total Obligated to Nov. 11, 1918, Including Disbursements	Estimated Savings from Contracts Cancelled, Terminated, or Reduced after Nov. 11, 1918
		U. S.	A. E. F.		
Ordnance Department	\$7,848,379.28	\$2,948,009,230	\$231,397,233	\$4,887,916,744	\$803,300,000
Medical Department	461,188,918	137,822,888	20,323,565	390,822,831	82,050,283
Signal Corps	156,352,937	7,205,139	277,025	169,396,106	10,900,000
Engineer Corps	1,551,726,000	484,466,566	135,730,356	820,804,077	239,387,750
Aircraft Production	1,499,067,766	561,895,738	76,352,621	1,407,694,102	402,000,000
Military Aeronautics	192,304,758	7,193,806	45,761,000	59,000,000	5,000,000
Chem. War. Service	307,058,475	35,003,607		120,039,484	29,495,822
Quartermaster Corps	12,263,899,917	4,977,713,542	558,204,592	6,958,138,790	480,789,650
Total	24,281,978,085	9,159,610,808	1,068,046,393	14,753,722,137	2,052,914,505

III. FOREIGN HISTORY

TOTAL AMERICAN ARMED FORCES SERVING, APRIL 6, 1917, TO NOV. 11, 1918,
BY STATES AND TERRITORIES

	Reg- ular Army officers and men in service, April 1, 1917.	Unlisted men of Army fur- nished through enlist- ment, National Guard and draft in- duction	Total Army officers who served, less Regular Army officers in service, April 1, 1917	Enlist- ments and enroll- ment in Navy includ- ing Reg- ulars	Officers in Navy Reg- ular and Re- serve	En- listed men in Marine Corps, Reg- ular and Re- serve	Officers in Marine Corps, Reg- ular and Re- serve	Total officers and men, includ- ing Coast Guard and U. S. Guards ¹	Per cent. of total
Ala.	2,615	74,678	3,975	4,847	283	397	15	86,910	1.824
Alaska ..	74	2,102	112	87	5	0	0	2,381	.050
Ariz.	372	10,492	558	1,566	92	257	9	13,377	.281
Ark.	2,162	61,027	3,248	4,703	275	367	14	71,862	1.508
Cal.	3,986	112,514	5,989	26,499	1,550	3,815	141	154,930	3.252
Col.	1,218	34,393	1,831	5,177	303	1,639	61	44,802	.940
Conn.	1,774	50,069	2,665	11,542	675	302	11	67,092	1.408
Del.	265	7,484	398	1,067	62	87	3	9,379	.197
D. C.	564	15,930	848	5,779	338	1,219	45	24,853	.522
Fla.	1,181	33,331	1,774	5,465	320	188	7	42,301	.888
Ga.	3,029	85,506	4,551	8,088	473	965	36	102,786	2.153
Idaho ..	674	19,016	1,012	2,018	118	636	24	23,571	.495
Ill.	8,894	251,074	13,363	37,365	2,185	6,356	235	320,228	6.722
Ind.	3,776	106,581	5,673	12,165	711	1,506	56	130,670	2.743
Iowa	3,499	98,781	5,258	10,748	628	731	27	119,792	2.515
Kan.	2,347	63,428	3,876	8,128	475	923	34	78,733	1.653
Ky.	2,658	75,043	3,994	8,615	504	854	32	91,821	1.927
La.	2,336	65,988	3,512	7,170	419	1,209	45	80,834	1.697
Maine ..	859	24,252	1,291	5,139	301	29	1	31,887	.669
Md.	1,667	47,054	2,504	8,724	510	1,194	44	61,839	1.298
Mass.	4,698	132,610	7,058	43,384	2,537	2,694	100	193,415	4.060
Mich.	4,799	135,485	7,211	16,468	963	2,762	102	168,131	3.520
Minn.	3,511	99,116	5,275	10,967	641	3,313	123	123,325	2.589
Miss.	1,923	54,295	2,890	4,927	288	360	13	64,758	1.359
Mo.	4,554	128,544	6,842	17,009	995	5,008	185	163,700	3.436
Mont.	1,286	36,293	1,932	2,665	156	1,494	55	44,048	.925
Neb.	1,693	47,805	2,544	6,134	359	641	24	59,207	1.244
Nev.	181	5,105	272	275	16	106	4	5,972	.125
N. H.	509	14,374	765	2,503	146	88	2	18,404	.386
N. J.	3,727	105,207	5,600	21,097	1,234	1,562	58	138,601	2.911
N. M.	441	12,439	662	1,493	87	30	1	15,162	.318
N. Y.	13,031	367,861	19,580	77,747	4,547	9,627	356	493,892	10.367
N. C.	2,586	73,003	3,886	7,480	437	652	24	88,168	1.851
N. D.	914	25,808	1,373	1,521	89	283	10	30,033	.630
Ohio	7,095	200,293	10,661	16,816	983	6,687	248	243,548	5.112
Okla.	2,840	80,169	4,267	6,832	399	488	18	95,100	1.996
Ore.	1,067	30,116	1,603	6,629	383	1,631	60	41,671	.875
Penn.	10,553	297,891	15,855	37,601	2,199	5,908	219	370,961	7.787
R. I.	597	16,861	897	7,574	443	77	3	26,468	.556
S. C.	1,895	53,482	2,847	5,977	350	143	5	64,739	1.359
S. D.	1,052	29,686	1,580	2,002	117	185	7	34,662	.728
Tenn.	2,686	75,825	4,036	6,336	370	1,844	68	91,386	1.918
Texas ..	5,706	161,065	8,573	18,484	1,081	2,851	106	198,298	4.161
Utah	615	17,361	924	2,043	119	1,320	49	22,571	.474
Vt.	331	9,338	497	1,634	96	25	1	11,929	.250
Va.	2,588	73,062	3,888	12,250	716	844	31	93,499	1.963
Wash.	1,600	45,151	2,403	10,936	642	2,610	97	63,775	1.339
W. Va.	1,976	55,777	2,969	3,325	194	755	28	65,127	1.367
Wis.	3,479	98,211	5,227	13,258	775	1,071	40	122,215	2.565
Wyo.	404	11,393	606	638	37	111	4	13,209	.277
Guam	0	0	0	248	14	0	0	262	.005
Hawaii ..	200	5,644	300	387	23	0	0	6,557	.138
P. I.	9	255	14	5,911	346	0	0	6,535	.137
P. R.	586	16,538	880	429	26	0	0	18,477	.398
Samoa ..	0	0	0	2,089	122	0	0	2,211	.046
No res.	97	2,817	151	725	42	0	0	3,834	.081
Virgin I.	0	0	0	63	4	0	0	67	.001
Total	133,111	3,757,624	200,000	550,809	32,208	77,844	2,882	4,764,071	100.000

¹ Total officers and men in Coast Guard service were 2,882; U. S. Guards numbered 1,800; total U. S. Guards serving was 26,262, but 24,462 of these were supplied from inducted men assigned from the National Army.

III. FOREIGN HISTORY

STRENGTH OF THE ARMY, BY MONTHS, APRIL 1, 1917, TO OCT. 1, 1919

Date	U. S. and Possessions	A. E. F.	Total	Commissioned Strength of Regular Army
1917:				
April 1	200,000	.....	200,000	5,791
May 1	290,000	.....	290,000	5,831
June 1	390,000	.....	390,000	5,785
July 1	480,000	20,000	500,000	6,169
August 1	516,000	35,000	551,000	6,508
September 1	646,000	45,000	691,000	7,022
October 1	883,000	65,000	948,000	7,126
November 1	996,000	104,000	1,100,000	9,940
December 1	1,060,000	129,000	1,189,000	10,015
1918:				
January 1	1,149,000	176,000	1,325,000	10,067
February 1	1,257,000	225,000	1,482,000	10,110
March 1	1,386,000	253,000	1,639,000	10,097
April 1	1,476,000	320,000	1,796,000	10,022
May 1	1,529,000	424,000	1,953,000	10,295
June 1	1,390,000	722,000	2,112,000	10,359
July 1	1,384,000	996,000	2,380,000	10,356
August 1	1,365,000	1,293,000	2,658,000	10,676
September 1	1,422,000	1,579,000	3,001,000	10,640
October 1	1,590,000	1,843,000	3,433,000	10,576
November 1	1,663,000	1,971,000	3,634,000	10,403
December 1	1,679,000	1,944,000	3,623,000	10,597
1919:				
January 1	1,163,000	1,837,000	3,000,000	10,557
February 1	914,000	1,710,000	2,624,000	10,664
March 1	761,000	1,562,000	2,323,000	10,513
April 1	680,000	1,376,000	2,056,000	10,283
May 1	666,000	1,088,000	1,754,000	10,202
June 1	578,000	730,000	1,308,000	10,046
July 1	579,000	357,000	936,000	9,850
August 1	442,000	133,000	575,000	9,679
September 1	366,000	54,000	420,000	9,359
October 1	273,000	34,000	307,000	8,954

CAMPS IN THE UNITED STATES

Length of time to build averaged 90 days. National army cantonments covered 167,741 acres. Average annual rental after second year of occupancy was \$3.93 per acre. National guard camps covered 78,639 acres. Total rental, second year and thereafter, was \$112,042. Total number of buildings at camps was 54,803.

NATIONAL ARMY CANTONMENTS	Location	Maximum Capacity	Approximate Cost	Status.1 Oct. 7, 1919
Custer	Battle Creek, Mich....	49,014	\$13,000,000	2
Devens	Ayer, Mass.....	36,832	11,800,000	2
Dix	Wrightstown, N. J....	42,806	12,300,000	2
Dodge	Des Moines, Iowa....	49,229	10,800,000	2
Funston	Fort Riley, Kan.....	42,806	10,500,000	1
Gordon	Atlanta, Ga.....	46,612	11,100,000	2
Grant	Rockford, Ill.....	62,675	14,400,000	2
Jackson	Columbia, S. C.....	44,009	10,000,000	2
Lee	Petersburg, Va.....	60,335	16,500,000	2
Lewis	American Lake (Tacoma), Wash.....	46,232	8,400,000	1
Meade	Odenton, Md.....	52,575	16,200,000	2
Pike	Little Rock, Ark. ...	55,010	12,700,000	2
Sherman	Chillicothe, Ohio....	49,112	12,900,000	2
Taylor	Louisville, Ky.....	45,424	8,000,000	2
Travis	San Antonio, Tex....	42,809	8,200,000	2
Upton	Yaphank, N. Y.....	43,567	13,500,000	2

1 Status, Oct. 7, 1919: 1. Owned by U. S. 2. Being purchased. 3. Purchase suspended by Act of Congress.

III. FOREIGN HISTORY

CAMPS IN THE UNITED STATES—Continued

NATIONAL GUARD CAMPS	Location	Maximum Capacity	Approximate Cost	Status, 1 Oct. 7, 1919
Beauregard . . .	Alexandria, La.	29,121	4,300,000	6-
Bowie	Fort Worth, Tex.	41,879	3,400,000	6
Cody	Deming, N. M.	44,959	3,800,000	6
Doniphan	Lawton, Okla.	46,183	2,706,000	1
Fremont	Palo Alto, Cal.	30,000	2,556,000	6
Greene	Charlotte, N. C.	48,305	4,300,000	6
Hancock	Augusta, Ga.	45,099	6,000,000	6
Kearney	San Diego, Cal.	32,066	5,838,000	5
Logan	Houston, Tex.	44,899	3,300,000	6
McArthur	Waco, Tex.	45,074	4,000,000	6
McClellan	Anniston, Ala.	57,746	9,800,000	1
Sevier	Greenville, S. C.	41,693	6,508,000	6
Shelby	Hattiesburg, Miss.	36,010	5,400,000	6
Sheridan	Montgomery, Ala.	41,593	3,500,000	6
Wadsworth	Spartanburg, S. C.	56,249	4,000,000	6
Wheeler	Macon, Ga.	43,011	3,200,000	6
SPECIAL CAMPS AND CANTONMENTS				
<i>Artillery:</i>				
Bragg	Fayetteville, N. C.	11,831	11,000,000	3
Eustis, Abraham .	Lee Hall, Va.	16,759	11,700,000	1
Knox	Stithton, Ky.	27,805	18,733,184	3
North Jackson . .	Columbia, S. C.			6
Summerall	Tobyhanna, Pa.			
<i>Chemical Warfare:</i>				
Kendric	Lakehurst, N. J.	4,900	1,500,000	
Leach	Washington, D. C.	1,759		
Willoughby	Willoughby, Ohio			
<i>Engineers:</i>				
Forrest	Ft. Oglethorpe, Ga.	24,457	5,600,000	6
Humphreys	Belvoir, Va.	32,434	12,745,000	1
Laurel	Laurel, Md.			
<i>Infantry School of Arms:</i>				
Benning	Columbus, Ga.	5,040		3
<i>Motor Transport:</i>				
Holabird	Baltimore, Md.	7,500		1
Jesup	Atlanta, Ga.	1,320		1
Normayle	San Antonio, Tex.	2,100		1
<i>Ordnance:</i>				
Aberdeen	Aberdeen, Md.	8,000	30,000,000	
Edgewood	Edgewood, Md.	10,000	43,000,000	
Erie (Perry)	Port Clinton, Ohio			
Raritan River . . .	Metuchen, N. J.	6,250	14,000,000	
<i>Signal Corps:</i>				
Franklin, Benj. . .	Admiral, Md.	11,000		
Vail, Alfred	Little Silver, N. J.	750		3
<i>Tank:</i>				
Colt	Gettysburg, Pa.	5,600		
Polk	Raleigh, N. C.			6
<i>Quartermaster:</i>				
Johnston	Jacksonville, Fla.	18,265		1
Meigs	Washington, D. C.	3,774	655,000	5
<i>Ambulance:</i>				
Crane	Allentown, Pa.			
<i>Medical:</i>				
Greenleaf	Ft. Oglethorpe, Ga.	See Forrest		6
Ft. Riley	Ft. Riley, Kan.			
<i>Embarkation:</i>				
Hill	Newport News, Va.	5,852	16,125,000	
Merritt	Dumont, N. J.	39,079	14,500,000	5
Mills	Garden City, N. Y.	25,000	13,000,000	6
Stuart	Newport News, Va.	24,234	See Hill	
<i>Limited Service:</i>				
Syracuse	Syracuse, N. Y.	7,400		
<i>Others:</i>				
Las Casas	San Juan, Porto Rico	13,265	2,500,000	
Robinson	Wisconsin			4
Stanley	Texas			1
E. Potomac Park .	Washington, D. C.			5

1 Status, Oct. 7, 1919: 1. Owned by U. S. 2. Being purchased. 3. Purchase suspended by Act of Congress. 4. Retained temporarily for storage; to be abandoned later. 5. Retained temporarily. 6. Sold or salvaged.

III. FOREIGN HISTORY

EMBARKATIONS FROM UNITED STATES, BY MONTHS, MAY, 1917, TO SEPTEMBER, 1919

	Officers	Army Field Clerks	Men	Nurses	Monthly Total	Cumulative Total
1917:						
May	229	36	986	438	1,689	1,689
June	403	19	11,665	158	12,245	13,934
July	625	0	12,084	118	12,827	26,761
August	1,121	1	16,692	202	18,016	44,777
September	3,213	38	30,213	97	33,561	78,338
October	2,146	147	40,548	173	43,014	121,352
November	967	26	21,846	84	22,923	144,275
December	3,427	116	44,557	215	48,315	192,590
1918:						
January	3,923	104	42,430	105	46,562	239,152
February	2,245	139	44,910	441	47,735	286,887
March	3,365	126	79,856	141	83,488	370,375
April	4,606	67	114,487	253	119,413	489,788
May	8,372	74	235,200	646	244,292	734,080
June	10,217	140	266,336	1,154	277,847	1,011,927
July	10,997	132	293,918	1,182	306,229	1,318,156
August	9,947	145	274,812	1,145	286,049	1,604,205
September	8,762	163	243,528	1,909	254,362	1,858,567
October	7,032	73	172,771	144	180,020	2,038,587
November 1-11....	1,154	4	17,397	24	18,579	2,057,166
November 12-30...	760	0	9,749	1,170	11,679	2,068,845
December	65	94	276	401	836	2,069,681
1919:						
January	50	106	51	2	209	2,069,890
February	31	15	299	0	345	2,070,235
March	35	55	118	0	208	2,070,443
April	21	0	63	0	84	2,070,527
May	215	0	3,774	0	3,989	2,074,516
June	636	0	4,009	0	4,645	2,079,161
July	448	0	2,895	0	3,343	2,082,504
August	31	0	212	0	243	2,082,747
September	28	0	8	0	36	2,082,783

CAMPS AND CANTONMENTS IN FRANCE

General Headquarters: Chaumont.

Headquarters, Service of Supplies: Tours.

Rest, Casual and Replacement Camps:

Angers (also Artillery)
Brest (also Depot)
Blois (also Medical)
Casteljaloux
Château du Loire
La Courtine (also Artillery)
Landes
Lormont
Malestroit
Paris
St. Aignau
St. Nazaire (also Depot, Infantry, Transportation)
St. Rivoal

Depot Camps:

Bassens (also Transportation)
Chateauroux (also Transportation)
Issoudun
Jonchery
Liffol le Grand (also Transportation)
Mehun
Penquet
Poinson
Romorantin
Rouen
St. Loubes
St. Sulpice (also Transportation)

Transportation:

Cercy la Tour
Gievres (also Depot)
La Pallice
Nixon
Perigueux
St. Luce
Is-sur-Tille (also Women's, Depot, Rest, Casual, Replacement)

Artillery:

Clermont Ferrand
Coetquidan
Haussimont
Libourne
Limoges
Mailly
Meucon
Saumur (also Transportation)
Souge
Valdahon

Infantry:

Le Courneau

Medical:

Cosne

Tanks:

Bourg
Langres
Neuvy Pailloux

Women's:

Bourges
Dijon

III. FOREIGN HISTORY

SUMMARY OF ARRIVAL OF PERSONNEL IN THE A. E. F., MAY 17, 1917, TO DEC. 31, 1918

Branch of Service	Officers	Enlisted Men	Total
Division Headquarters and Headquarters Troop	1,650	7,923	9,573
Infantry	18,488	729,498	747,986
Field Artillery.....	8,201	217,606	225,807
Machine Gun Battalions.....	2,635	71,054	73,689
Train Headquarters and Military Police..	552	15,639	16,191
Ammunition Train.....	1,411	53,749	55,160
Signal Corps.....	1,592	36,079	37,671
Medical Department.....	15,460	131,883	147,343
Ordnance Department.....	1,309	20,956	22,265
Staffs, Executive Services.....	2,335	1,985	4,320
Army Service Corps.....	21	2,681	2,702
Tank Corps.....	610	9,210	9,820
Heavy Artillery.....	2,620	64,396	67,016
Corps Artillery.....	286	8,769	9,055
Anti-Air Craft Machine Gun.....	136	3,543	3,679
Quartermaster Corps.....	2,794	56,031	58,825
Quartermaster Labor.....	705	51,365	52,070
Cavalry	329	6,264	6,593
Pioneer Infantry.....	2,334	82,713	85,047
Motor Transport Corps.....	990	29,496	30,486
Transportation Corps.....	1,257	48,112	49,369
Stevedores	173	4,936	5,109
Light Railroads and Roads.....	564	26,524	27,088
Construction and Forestry.....	480	19,684	20,164
Engineers and Trains.....	3,511	97,787	101,298
Engineers, Special Service.....	478	15,249	15,727
Aviation	5,707	74,273	79,980
Marines	872	31,262	32,134
Supply Trains.....	578	18,532	19,110
Engineer Service Battalions.....	515	31,302	31,817
Arm of service unknown.....	5,427	18,942	24,369
Total of Services.....	84,020	1,987,443	2,071,463
Nurses			10,635
Field clerks.....			1,767
Aggregate			2,083,865

COMPOSITION OF THE A. E. F., NOV. 11, 1918

Combatant:	Number	Per Cent. Total	Non-combatant:	Number	Per Cent. Total
Infantry	502,216	25.6	Medical, includ. nurses	152,318	7.7
Field Artillery.....	202,162	10.3	Quartermaster labor...	55,077	2.8
Engineers	81,556	4.2	Quartermaster	47,754	2.4
Coast Artillery.....	76,333	3.9	Transportation	44,412	2.3
Infantry Pioneers.....	73,710	3.8	Air Service.....	43,442	2.2
Machine Gun Battalions	70,126	3.6	Engineer labor.....	37,097	1.9
Ammunition Trains....	48,974	2.5	Construction & forestry	33,956	1.7
Air Service.....	34,828	1.8	Motor transport.....	32,444	1.7
Supply Trains.....	21,789	1.1	Ordnance	22,946	1.2
Signal Battalions.....	21,328	1.1	Army Service Corps...	16,991	0.9
Headquarters	16,944	0.9	Light railways & roads	15,796	0.8
Train Hq. & Mil. Police	12,165	0.6	Engineer Special Serv.	14,888	0.8
Tank Corps.....	10,214	0.5	Signal Corps.....	13,803	0.7
Cavalry	6,028	0.3	Headquarters	7,227	0.4
Chemical Warfare.....	1,821	0.1	Stevedores	6,813	0.4
In hospitals.....	73,136	3.7	Chemicals	1,632	0.1
Total combatant...	1,253,330		Total non-combatant	546,596	
			Unidentified	115,454	6.0
			Casuals and replace- ments	44,466	2.3
			Grand total.....	1,959,846	

HISTORY OF DIVISIONS IN A. E. F.

Twenty-nine of the 42 American divisions that went to France took part in active combat. The rest were used for replacements or were incompletely trained. The training time of divisions averaged 11 months. The authorized strength of a division was 28,293 officers and men; the authorized enlisted personnel numbered 26,921, distributed as follows: headquarters troops, 195; infantry, 14,154; artillery, 4,769; machine gunners, 2,561; engineers, 1,647; field signal, 473; and trains, 3,122.

DIVISION	SOURCE OF PERSONNEL	FUNCTIONED IN FRANCE AS	ARRIVED IN FRANCE	ENTERED FIRST QUIET SECTOR	ENTERED FIRST ACTIVE SECTOR	BATTLE CASUALTIES	DAYS IN QUIET SECTOR	DAYS IN ACTIVE SECTOR	ADVANCE IN BATTLE	PRISONERS CAPTURED	GUNS CAPTURED	MACHINE GUNS CAPTURED	PRISONERS LOST	REPLACEMENTS MAY 1 TO NOV. 13, 1918	STRENGTH NOV. 13, 1918	UNITED STATES SAILED FOR	CAMP AND DATE DEMOBILIZED
1	Regulars	Combat	June 26, '17	Oct. 21, '17	April 25, '18	22,097	127	94	51.0	6,469	181	413	152	30,206	26,272	Aug. 25, '19	
2	Regulars	Combat	Oct. 22, '17	Mar. 18, '18	June 31, '18	22,518	71	66	60.0	2,926	401	1,350	157	35,333	23,099	July 25, '19	
3	Regulars	Combat	April 4, '18	Sept. 6, '18	May 31, '18	19,033	...	96	41.0	2,210	154	1,501	314	24,033	25,076	Aug. 14, '19	
4	Regulars	Combat	May 17, '18	June 6, '18	July 13, '18	12,033	...	38	21.5	3,756	46	31	72	19,539	26,033	July 14, '19	
5	Regulars	Combat	May 1, '18	June 15, '18	Sept. 12, '18	8,483	72	32	29.0	2,357	166	802	100	12,611	21,675	July 13, '19	
6	Regulars	Combat	July 23, '18	Sept. 2, '18	Nov. 10, '18	1,704	40	...	0.5	12	0	3	3	2,731	24,798	June 12, '19	1919
7	Regulars	Combat	Aug. 11, '18	Oct. 10, '18		(a)	31	2		69	5	28	20	4,112	25,187	Jan. 4, '19	
8	Regulars	Combat	Nov. 13, '18			(a)	(d)	(a)		(a)	(a)	(a)	1	...	...	Mar. 26, '19	Devens, April 29
26	New Eng.	Combat	Oct. 23, '17	Feb. 10, '18	July 10, '18	13,966	148	45	37.0	3,148	31	132	457	14,411	20,709	Mar. 26, '19	Upton, April 4
27	New York	Combat	May 16, '18	Sept. 20, '18	July 28, '18	9,666	...	57	10.0	2,357	26	307	229	5,235	19,279	Feb. 18, '19	Dix, May 17
28	Fa.	Combat	May 18, '18	Sept. 20, '18	July 28, '18	14,071	31	49	23.0	921	16	63	732	21,717	23,016	Apr. 20, '19	Dix, May 17
29	N. J., Del., Va., Md.	Comb.t	June 28, '18	July 25, '18	Oct. 4, '18	5,298	59	23	7.0	2,187	26	250	68	4,977	20,946	May 6, '19	Dix, May 30
30	D. C. N. C., S. C., D. C. Fla.	Combat	May 24, '18		July 16, '18	8,775	...	65	35.5	3,848	107	426	75	2,384	20,682	Mar. 18, '19	Jackson, May 7
31	Ga., Ala.	Replac.	Oct. 21, '18			(b)	(d)	(b)	(b)	(b)	(b)	(b)	2	...	...	Dec. 10, '18	Gordon, Jan. 14
32	Mich., Wis.	Comb.t	Feb. 20, '18	May 21, '18	July 30, '18	13,828	60	37	36.	2,153	87	190	161	20,140	24,576	Apr. 26, '19	Custer, May 2
33	Illinois	Combat	May 24, '18	Sept. 10, '18	Sept. 26, '18	7,057	32	27	30.9	3,987	117	414	127	5,415	23,986	May 9, '19	Grant
34	Neb., Iowa, S. D., Minn.	Replac.	Oct. 4, '18			(b)	(d)	(b)	(b)	(b)	(b)	(b)	1	...	...	Jan. 7, '19	Grant, Feb. 17
35	Mo., Kan.	Combat	May 11, '18	June 30, '18	Sept. 26, '18	7,196	48	5	10.0	781	26	85	167	10,605	33,054	April 8, '19	Funston
36	Tex., Okla.	Combat	May 31, '18	Aug. 4, '18	Oct. 4, '18	2,551	...	23	21.0	549	26	277	24	3,397	23,435	May 23, '19	Bowie, June 18
37	Ohio	Combat	June 23, '18		Sept. 26, '18	5,371	51	11	30.7	1,502	31	261	23	6,282	33,391	Mar. 15, '19	Sherman, June 25
38	Ind. Ky., W. Va.	Replac.	Oct. 19, '19			(b)	(d)	(b)	(b)	(b)	(b)	(b)	2	...	...	Dec. 8, '18	Taylor, March
39	Ala., Miss., La.	Replac.	Aug. 18, '18			(b)	(d)	(b)	(b)	(b)	(b)	(b)	2	...	...	Dec. 20, '18	Beauregard, Jan. 9

40	Cal., Col., Utah, Ariz., N. M.	Aug. 20, '18	Depot	July 15, '18	(b) (d)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	3	.....	Feb. 25, '19	Kearny, April 20
41	Wash., Ore., Mont., Idaho, Wyo.	Dec. 27, '17	Dep't	Feb. 21, '18	(b) (d)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)	4	.....	Feb. 3, '19	Dix, Feb. 22
42	Var. States New England	Nov. 1, '17	Combat Replac.	July 20, '18	(b) (d)	135	29	55.0	1,317	50	470	112	17,253	20,430	Apr. 18, '19	Dix, May 9	
76	New York	July 20, '18			(b) (d)	125	(b)	(b)	(b)	(b)	(b)	3	.....	.....	Devens, Jan.		
77	N. Y. City	Apr. 13, '18	Combat	June 21, '18	(b) (d)	47	66	71.5	750	90	277	403	12,728	24,308	Dec. 22, '18	Upton, May 10	
78	N. Y. X.	June 8, '18	Combat	Sept. 16, '18	(b) (d)	17	21	21.0	432	4	43	123	3,190	19,762	Apr. 17, '19	Dix, June 9	
79	N. J., Del.	Sept. 15, '18	Combat	Sept. 26, '18	(b) (d)	6,890	28	17	19.5	1,077	41	266	80	6,246	22,804	May 18, '19	Dix, June 3
80	N. E. Pa., Md D. C.	Sept. 15, '18	Combat	Sept. 26, '18	(b) (d)	5,768	1	17	36.0	1,813	123	606	100	4,495	24,580	May 17, '19	Lee, June 5
81	W. Va., West. Va.	May 30, '18	Combat	Sept. 25, '18	(b) (d)	1,272	29	2	7.5	101	4	44	51	1,984	23,731	June 1, '19	Upton, June
82	N. C., S. C., F. a. R.	Aug. 16, '18	Combat	Sept. 21, '18	(b) (d)	7,801	78	30	16.0	845	43	279	240	8,402	22,766	May 9, '19	Upton, June
83	Cal., Ala., Tenn.	May 16, '18	Depot	June 23, '18	(b) (d)	182	(b)	(b)	(b)	(b)	(b)	3	.....	.....	Jan. 12, '19	Sherman	
84	Ohio, W. Pa.	June 17, '18	Replac.		(b) (d)	90	(b)	(b)	(b)	(b)	(b)	1	.....	.....	Jan. 6, '19	Taylor	
85	Ky., Ind., So. Ill.	Sept. 25, '18			(b) (d)	568	(b)	(b)	(b)	(b)	(b)	18	.....	.....	Mar. 22, '19	Custer, April 18	
86	Mich., E. Wis.	Aug. 10, '18	Dep't	Sept. 23, '18	(b) (d)	109	(b)	(b)	(b)	(b)	(b)	0	.....	.....	Dec. 25, '18	Grant	
87	Chicago N. Ill.	Sept. 23, '18	Replac.		(b) (d)	32	(b)	(b)	(b)	(b)	(b)	0	.....	.....	Jan. 10, '19	Dix, Feb. 14	
	Ark., La., Miss., S. Ala.	Sept. 10, '18	Combat (assign- ed S. O. 3. duty)		(b) (d)	121	28	.....	3	0	0	0	734	25,428	May 21, '19	Dodge, June 10	
88	N. D., Minn., Iowa, W. Ill.	Aug. 16, '18	Combat	Oct. 7, '18	(b) (d)	7,086	55	28	36.0	5,061	158	455	25	7,669	22,320	May 18, '19	Funston, June
89	Kan., Mo., S. D., Neb.	June 21, '18	Combat	Aug. 10, '18	(b) (d)	7,384	42	26	28.5	1,876	78	194	81	4,437	20,873	May 29, '19	Bowie, July 17
90	Tex., Okla.	June 23, '18	Combat	Aug. 24, '18	(b) (d)	5,821	6	14	34.0	2,412	38	466	28	12,530	22,172	April 6, '19	Presidio of San Francisco, May 3
91	Wash., Cal., Idaho, Neb., Mont., Wyo., Utah.	July 12, '18	Combat	Sept. 20, '18	(b) (d)	1,641	60	2	8.0	38	0	10	17	2,920	26,894	Feb. 8, '19	Meade, Feb. 27
92	Colored Various States	June 19, '18	Combat	Aug. 23, '18	(b) (d)	18	(c)	(x)	(x)	(x)	(x)	4	.....	.....	.....	.....	.....
93	Colored States	Dec. 17, '17	Combat	April 8, '18	(b) (d)	947	175	17	(x)	(x)	(x)	(x)	.....	.....	.....	.....	.....
369	Regt. var.	April 4, '18		July 8, '18	(b) (d)	744	15	43	(x)	(x)	(x)	(x)	.....	.....	.....	.....	.....
370	Regt. States	April 13, '18		June 23, '18	(b) (d)	876	110	3	(x)	(x)	(x)	(x)	.....	.....	.....	.....	.....
371	"	Apr. 18, '18		June 6, '18	(b) (d)	603	111	11	(x)	(x)	(x)	(x)	.....	.....	.....	.....	.....
372	"				(b) (d)				(x)	(x)	(x)	(x)	.....	.....	.....	.....	.....

(a) Never employed in battle. (b) Replacement division. (c) Classified by regiments where data are available except 18 casualties not localized. (d) Casualties among replacements from these divisions never reported by organization with which in battle. (e) Plus 147th Field Artillery. (x) No data available.

III. FOREIGN HISTORY

STRENGTH OF THE A. E. F., BY AREAS, MAY 16, 1918, TO SEPT. 30, 1919

	American Areas	British Areas	In England	In Italy	In European Russia	Passing through England	Aggregate
1918							
May 16	435,100	36,639	18,085	.....	.....	13,371	503,195
May 31	489,117	115,407	23,149	.....	.....	.....	627,673
June 30	754,697	100,184	258	.....	.....	16,402	871,541
July 31	1,036,009	121,108	22,447	5,451	.....	10,220	1,195,235
Aug. 31	1,321,688	43,978	25,166	5,828	4,469	27,065	1,428,194
Sept. 30	1,639,078	41,554	29,905	5,843	4,800	.....	1,721,180
Oct. 31	1,766,026	85,679	27,672	5,330	4,689	.....	1,889,396
Nov. 30	1,869,094	47,157	35,357	5,451	5,419	.....	1,962,478
Dec. 31	1,846,733	4,319	6,049	5,473	4,720	.....	1,867,294
1919							
Jan. 31	1,738,846	952	6,185	5,589	4,720	.....	1,756,292
Feb. 28	1,574,845	.....	3,707	3,460	4,916	.....	1,586,928
Mar. 31	1,374,636	639	2,899	1,325	4,849	.....	1,384,348
April 30	1,088,774	.....	3,800	115	5,206	.....	1,097,895
May 31	739,105	.....	2,302	94	5,630	.....	747,131
June 30	372,647	.....	1,880	.....	755	.....	375,282
July 31	131,841	198	.....	.....	744 ¹	.....	132,813
	In France	In Ger- many	In Great Britain	In North Russia	Else- where		
Aug. 31	40,616	12,855	144	.....	.....		53,615
Sept. 30	23,114	11,048	57	13	765		34,997

¹ Of the 774 troops of European Russia, 730 were *en route* to Brest on July 31.

PRISONERS OF WAR

Official figures give 49,969 prisoners of war taken by the A. E. F. and 4,480 Americans captured. Reports from divisions give 63,079, a discrepancy probably due to duplication of records, and also to possible turning over of A. E. F. prisoners to French enclosures. The pay of privates and non-commissioned officers was from four to 20 cents, according to grade, for each day they worked. Officers were not required to work. Lieutenants were paid \$83.35 a month, higher officers, \$95.25. The status in the A. E. F. on March 1, 1919, was as follows:

	Officers	Men
Total prisoners in enclosures	883	47,315
Total enclosures	1	92
U. S. Army personnel with prisoners	247	9,033

The record of enemy prisoners in the United States was as follows:

Paroled prior to Nov. 11, 1918.	102
Released since Nov. 11, 1918...	3,789
In barracks, Sept. 14, 1919....	1,832
Died	133
Escaped	32
Total	5,888

The prisoners in barracks on Sept. 14, 1919, included 1,339 prisoners of war at Fort McPherson, Ga., 303 enemy aliens at Ft. Oglethorpe, Ga., and 190 enemy aliens at Ft. Douglas, Utah.

CASUALTIES IN THE A. E. F. TO JUNE 3, 1919

	Number	Per Cent. of Total Casual- ties
Deaths:		
Killed in action....	34,785	17.1
Died of wounds....	14,713	
Died of disease....	23,238	
Died of accidents...	1,799	10.
Drowned	268	
Suicide	240	
Cause not stated...	3,512	
Total	78,555	
Wounded:		
Severely	90,827	70.8
Slightly	80,483	
Degree undetermined	34,380	
Total	205,690	
Prisoners	4,480	1.5
Missing (to May 25, 1919)	1,609	0.6
Total casualties	290,334	

III. FOREIGN HISTORY

CASUALTIES IN THE A. E. F., BY MONTHS, TO DEC. 31, 1918		CASUALTIES IN THE A. E. F. BY ARM OF SERVICE, TO JUNE 3, 1919	
1917:		Air Service.....	1,652
September	5	Anti-aircraft	256
October	22	Artillery	14,648
November	69	Coast Artillery.....	1,077
December	115	Cavalry	132
1918:		Engineers	11,158
January	324	Gas	341
February	434	Headquarters	2,976
March	1,904	Infantry	217,215
April	2,367	Marines	10,669
May	4,856	Machine gun.....	16,810
June	10,192	Medical	3,038
July	38,900	Motor transport.....	965
August	24,321	Military police and Hq. troops..	639
September	54,464	Ordnance	303
October	107,022	Pioneer Infantry.....	1,945
November	35,901	Quartermaster Corps.....	2,066
December	2,202	Signal Battalions.....	2,329
		Tank Corps.....	506
		Total 1	288,725
		1 Exclusive of 1,609 reported missing.	

TOTAL DEATHS IN THE ARMY, APRIL 7, 1917, TO OCT. 1, 1919

	In A. E. F. ¹				In United States			Total Army
	Battle	Dis-ease	Other Causes	Total A. E. F.	Dis-ease	Injury	Total U. S.	
1917 and 1918..	50,062	18,786	5,054	73,902	31,481	1,670	33,151	107,053
1919 to Oct. 1...	261	4,677	975	5,913	3,189	357	3,546	9,459
Total.....	50,323	23,463	6,029	79,815	34,670	2,027	36,697	116,512

¹ Includes 106 deaths in Siberia.

DEATHS FROM DISEASE IN THE ARMY, BY CAUSES, JAN. 1, 1917, TO OCT. 31, 1919

	1917	1918	1919 to Oct. 31	Total	Per Cent. of Total 1917-19	In A. E. F., July 1, 1917, to June 3, 1919	
						Deaths	Per Cent.
Influenza	14	23,007	83	23,104	36.0	808	80.9
Pneumonia	1,061	15,671	4,246	20,978	32.7	18,047	
Measles	975	1,480	4	2,459	3.8	.....	.....
Tuberculosis	141	993	1,307	2,441	3.8	594	2.5
Meningitis	365	1,179	513	2,057	3.2	1,163	5.0
Bronchitis	5	431	6	442	0.7	.....	.....
Heart disease.....	78	195	102	375	0.6	.....	.....
Scarlet fever.....	59	258	30	347	0.5	69	11.6
Typhoid	23	133	104	260	0.4	166	
Appendicitis .....	.....	.....	.....	.....	.....	106	.....
Septicæmia .....	.....	.....	.....	.....	.....	180	
Nephritis .....	.....	.....	.....	.....	.....	136	.....
Peritonitis .....	.....	.....	.....	.....	.....	129	
All others.....	609	4,037	7,074	11,720	18.3	1,840	.....
Total.....	3,330	47,384	13,469	64,183	.....	23,238	.....

III. FOREIGN HISTORY

PRINCIPAL A. E. F. CEMETERIES IN EUROPE

There are approximately 915 American cemeteries in France, many, with only a few bodies, so small that as yet they bear no name. The latest information available gives the number of American bodies in France as 72,500. The following table lists only those cemeteries in which over 200 members of the A. E. F. were buried on March 4, 1919.

Location	American or French	Province	Burials, March 4, 1919
FRANCE :			
Lambezellec	American Cemetery	Finistere	1,517
Toul	Am. Cemetery, Just. Hosp. Group	Meurthe et Moselle	1,219
St. Nazaire	American Cemetery	Loire Inferieure	977
Suresnes (Paris)	American Cemetery	Seine	791
Souilly	American Cemetery	Meuse	724
Brest	American Plot, Kerfastras	Finistere	702
Bazoilles	American Cemetery	Vosges	687
Mesves	American Cemetery	Nievre	650
Chaumont	American Cemetery	Haute Marne	561
Talence	American Cemetery	Gironde	559
Verdun	Glorieux French Cemetery	Meuse	535
Fleury-sur-Aire	Am. Plot, Central Hosp. Cemetery	Meuse	531
Serignes-et-Nesles	American Battle Area Cemetery	Aisne	518
Le Mans	Amer. Plot, Grand Cemetery	Sarthe	511
Toul	American Cemetery, Sebastopol	Meurthe et Moselle	505
Madeline-Farm	American Cemetery	Meuse	443
Noyers	American Cemetery	Loire et Cher	438
Allerey	American Cemetery	Saone et Loire	437
Ploisy	American Battle Area Cemetery	Aisne	390
Cheppy-sur-Meuse	American Cemetery	Meuse	381
Rouen	St. Sever Cemetery	Seine Inferieure	381
Mars-sur-Allier	American Cemetery	Nievre	375
Froidos	Central Military Hosp. Cemetery	Meuse	352
Bonny-sur-Loire	Bonny Military Cemetery	Loiret	351
Senoncourt	American Military Cemetery	Meuse	350
La Ferte	American Sect. French Cemetery	Seine et Marne	344
Froidos	American Battle Area Cemetery	Meuse	342
Rimaucourt	American Cemetery	Haute Marne	330
Fismes	American Battle Area Cemetery	Marne	326
Dijon	American Plot, French Cemetery	Cote d'Or	319
Vittel	American Cemetery	Vosges	301
Angers	New American Cemetery	Maine et Loire	296
Vaubecourt	American Cemetery	Meuse	290
Gillefont Farm	American Battle Area Cemetery	Aisne	288
Fere-en-Tardenois	American Battle Area Cemetery	Aisne	281
Merignac (Bordeaux)	American Cemetery	Gironde	280
Hericourt	Fr. & Am. Mil. Cemetery, No. 2	Haute Saone	269
Nantillois	American Battle Area Cemetery	Meuse	261
Menil la Tour	American Cemetery	Meurthe et Moselle	256
Bonvillers	American Cemetery	Oise	254
Epieds	American Military Cemetery	Aisne	249
Tours	American Cemetery	Indre et Loire	249
Nantes	American Cemetery	Loire Inferieure	249
Montlevon	American 3rd Div. Cemetery	Aisne	245
Fromereville	Military Cemetery	Meuse	244
Centrexville	American Cemetery	Vosges	242
Brizeaux	American Battle Area Cemetery	Meuse	240
Ploisy	American Cemetery	Aisne	238
Consenvoye	American Battle Area Cemetery	Meuse	237
Mouroux	American Cemetery	Seine et Marne	234
Limoges	American Cemetery	Haute Vienne	225
Clermont-Ferrand	American Cemetery	Puy de Dome	224
St. Gengoulph	American Cemetery	Aisne	221
Beaune	American Cemetery	Cote d'Or	219
Savenay	American Cemetery	Loire Inferieure	217
La Valdahon	American Cemetery	Doubs	208
Villers-Daucourt	American Battle Area Cemetery	Marne	205
Is-sur-Tille	American Cemetery	Cote d'Or	202
GREAT BRITAIN :			
Winchester	Magdalene Hill Cemetery	England	460
Liverpool	Everton Cemetery	England	520
Islay	Cemetery Kilchoman	Scotland	200

III. FOREIGN HISTORY

HOSPITALIZATION IN A. E. F.

Between April 6, 1917, and Nov. 11, 1918, the Government spent over \$390,000,000 for hospitals and medical supplies. Although the influenza-pneumonia epidemic was coincident with heavy battle casualties, in the fall of 1918, all needs of hospitalization were met by a system of crisis expansion by tentage. Twenty-one hospital trains were purchased in England and France, with a capacity of between 300 and 400 lying cases each. As many as 670 patients have been carried on one train. Hospitals

were, in general, of three types: (1) camp hospitals, serving local areas, 300 beds; (2) base hospitals, 1,000 beds, with crisis expansion to 2,000 beds; and (3) hospital centers, including base hospitals and convalescent camps, under central control. Buildings constructed by the A. E. F. provided 141,000 beds, and buildings taken over from the French provided 139,000 beds. The total American construction was 7,700 standard hospital barracks, which aggregated 127 miles of wards.

DISPOSITION OF HOSPITAL CASES IN THE A. E. F., JUNE 5, 1918, TO FEB. 1, 1919

	Disease Cases	Per cent.	Wound and Injury Cases	Per cent.
Returned to duty.....	608,185	88.2	169,080	71.4
Invalided home.....	59,305	8.6	54,153	22.8
Died	18,067	2.6	12,376	5.2
Deserted from hospital.....	3,505	0.5	1,059	0.5
Otherwise disposed of.....	117	0.1	98	0.1
Total.....	689,179	.....	236,766	.....

SICK AND WOUNDED SAILING FROM EUROPE SINCE NOV. 11, 1918

	Nov. 11 to Dec. 31, 1918	Jan., 1919	Feb., 1919	March, 1919	April, 1919	Per cent. of Total Sick and Wounded Sailing	Total to April 29, 1919
Requiring no special attention...	24,372	9,948	18,586	17,767	16,283	85.56	86,956
Bedridden	1,963	1,225	780	1,529	1,654	7.03	7,151
Mental cases.....	746	110	601	821	650	2.88	2,928
Surgical cases.....	1,594	0	0	0	0	1.57	1,594
Requiring isolation	354	204	295	499	306	1.63	1,658
Others requiring special attention.	1,284	12	23	24	8	1.33	1,351
Total.....	30,313	11,499	20,285	20,640	18,901	100.	101,638
Per cent. of all troops sailing...	25	11	13	8	7	.....	11

ARMY NURSES ON ACTIVE DUTY, BY MONTHS, APRIL, 1917, TO OCTOBER, 1919

	1917			1918			1919		
	Regular	Re-serve	Total	Regular	Re-serve	Total	Regular	Re-serve	Total
January .....	.....	.....	.....	519	4,062	4,581	3,245	15,771	19,016
February .....	.....	.....	.....	924	5,633	6,557	3,069	15,156	18,225
March .....	.....	.....	.....	1,079	6,242	7,321	2,833	13,376	16,209
April	235	165	400	1,294	7,738	9,032	2,722	11,875	14,597
May	243	401	644	1,531	8,901	10,432	2,539	10,844	13,383
June	259	685	944	1,822	9,732	11,554	2,186	8,041	10,227
July	266	990	1,256	2,115	10,697	12,812	1,921	6,618	8,539
August	288	1,203	1,491	2,432	11,883	14,315	1,446	3,699	5,145
September	304	1,222	1,526	2,712	13,378	16,090	1,381	2,607	3,988
October	317	1,872	2,189	3,166	16,266	19,432	1,304	1,914	3,218
November	321	2,487	2,808	3,524	17,956	21,480	.....	.....	.....
December	377	3,351	3,728	3,275	16,531	19,806	.....	.....	.....

III. FOREIGN HISTORY

RETURN OF TROOPS TO UNITED STATES, BY MONTHS

	Officers	Enlisted Men	Army Field Clerks	Nurses	Total	Cumulative Total
1918:						
November 12-30....	398	4,105	2	8	4,513	4,513
December	3,578	65,531	10	108	69,227	73,740
1919:						
January	6,332	113,270	27	137	119,766	193,506
February	8,096	131,673	48	506	140,323	333,829
March	7,567	197,596	71	1,660	206,894	540,723
April	11,024	261,047	128	2,064	274,263	814,986
May	11,856	299,692	166	1,073	312,787	1,127,773
June	12,461	326,160	212	1,521	340,354	1,468,127
July	17,477	274,775	429	1,707	294,388	1,762,515
August	7,550	105,741	271	809	114,371	1,876,886
September	3,816	43,654	213	37	47,720	1,924,606
October	1,548	17,759	71	15	19,393	1,943,999
November 1-11.....	153	1,830	2	48	2,033	1,946,032
Total	91,856	1,842,833	1,650	9,693	1,946,032	
Total before Nov. 11, 1918	4,616	14,819	26	114	19,575	

DISCHARGE OF OFFICERS AND ENLISTED MEN AFTER ARMISTICE, BY MONTHS

	Officers	Enlisted Men
1918:		
November	593	43,000
December	37,043	609,000
1919:		
January	23,563	358,000
February	14,913	263,000
March	11,479	263,000
April	12,185	298,000
May	14,622	383,000
June	13,588	391,000
July	16,404	361,000
August	15,986	151,000
September	8,716	73,000
October	8,690	33,000
Nov. 1-10	2,018	11,062
Total	179,800	3,237,062 ¹

¹ 19,734 furloughed to the reserve are not included.

RESIGNATIONS OF REGULAR ARMY OFFICERS, NOV. 11, 1918, TO NOV. 12, 1919, BY SERVICES

Infantry	767
Coast Artillery.....	384
Cavalry	312
Field Artillery.....	265
Medical Corps.....	128
Engineers	85
Chaplains	29
Dental Corps	19
Veterinary Corps	18
Philippine Scouts.....	4
Quartermaster	3
Judge-Advocate-General	1
Total	2,015
Permanent resignations.....	396
Provisional resignations.....	1,619

NATIONALITY OF SHIPS TRANSPORTING A. E. F.

From Europe	Number	Per cent.	To Europe	Number	Per cent.
British	1,027,000	49.	British	143,606	7.4
United States.....	927,000	45.	Others	132,446	6.8
Italian	65,000	3.	U. S. Troop transports.	1,093,540	56.3
French	47,000	2.	U. S. Converted cargo..	410,538	21.2
Russian (British control)	20,000	1.	U. S. Battleships and		
			cruisers	161,317	8.3
	2,086,000	....	Total	1,941,447	....
			Previous to Nov. 11, 1918	22,183	....
			Total to Aug. 31, 1919..	1,963,630	....

III. FOREIGN HISTORY

SOURCES OF AMERICAN CARGO FLEET

	Dead-weight Tons		Dead-weight Tons
U. S. Army	18,000	Norway...	81,460
U. S. Navy	16,700	Russia...	5,100
Cuba	10,500	Denmark.	16,917
Brazil	8,500	Germany.	460,737
Holland ...	374,817	Austria...	39,258
Gr. Britain	88,397	Japan....	173,041
Sweden ...	93,603	China....	15,610
Shipping Control Committee			
took from the trades.....		1,401,972	
Emergency Fleet Corporation			
built (new shipping).....		935,274	

ALLIED AND NEUTRAL SEAGOING TONNAGE BUILT AND SUNK, BY QUARTERS

	Built, ¹ gross tons	Sunk, gross tons
1915		
1st		189,958
2d		302,114
3d		444,115
4th		363,535
Total, 1915..	1,201,638	1,299,722
1916		
1st		394,227
2d		428,706
3d		508,318
4th		1,031,517
Total, 1916..	1,688,080	2,362,768
1917 (unrestricted warfare)		
1st		1,499,093
2d		2,151,474
3d		1,406,262
4th		1,146,020
Total, 1917..	2,937,786	6,202,849
1918		
1st		966,430
2d		825,265
3d		720,905
4th		124,846
Total, 1918..	5,447,440	2,637,446
Grand total 2	11,274,944	12,502,785

¹ Returns not complete.

² In all, through acts of war, 12,813,086 gross tons, more than one-third total Allied and neutral shipping, was sunk. New construction and enemy tonnage taken over offset this so that the net loss at the end of the war was but three per cent.

AMERICAN TRANSPORTS LOST AT SEA

German submarine warfare, the direct cause of America's entry into the war, was responsible for the loss of less than 0.04 per cent. of American troops and two per cent. of their supplies.

Transport	Date sailed, 1918	Number Sailed	Lives Lost
<i>Tuscania</i> 1....	Jan. 24	2,178	205
<i>Moldavia</i> 1	May 6	479	53
<i>Ticonderoga</i> 1 ..	Sept. 19	114	114
<i>Otranto</i> 2	Sept. 25	699	365
Total		3,470	737

1 Torpedoed, the *Ticonderoga* in mid-ocean. 2 Sunk in collision.

TOTAL MERCHANT SHIPPING LOST, BY NATIONS

	Gross Tons
Great Britain.....	7,757,000
Norway	1,177,000
France	889,000
Italy	846,000
United States.....	395,000
Greece	346,000
Denmark	241,000
Holland	203,000
Sweden	201,000
Germany	187,000
Russia	183,000
Spain	168,000
Japan	120,000
Portugal	93,000
Belgium	84,000
Brazil	25,000
Austria	15,000
Others	16,000
Total	12,946,000

CONFIRMED LOSSES OF ENEMY SUBMARINES, BY QUARTERS

The confirmed sinkings of enemy submarines during the war was 207; there were in addition unconfirmed reports of 257 submarines sunk.

	1915	1916	1917	1918
1st	5	3	10	19
2d	3	8	13	26
3d	11	5	20	21
4th	2	12	24	23
Total	21	28	67	89

III. FOREIGN HISTORY

CARGO TONNAGE OF THE A. E. F., BY MONTHS

The need of cargo for consumption per man per day, as estimated in the spring of 1918, was 29.6 lb. The actual average pounds discharged October, 1917, to November, 1918, inclusive, was 27.7 per man per day.

Month	Total Deadweight Tonnage Engaged		Short Tons Received		
	Trans-Atlantic	Cross-Channel	From United States	From Europe	Total
1917:					
June	48,000	.....	24,524	.....	24,524
July	85,000	.....	23,780	7,500	31,280
August	126,000	.....	28,355	10,718	39,073
September ..	224,000	7,000	33,853	22,039	55,892
October	292,000	7,000	68,859	96,625	165,484
November ..	462,000	34,000	92,128	100,102	192,230
December ...	528,000	57,000	72,154	73,841	145,995
1918:					
January	605,000	59,000	136,301	67,004	203,305
February ...	699,000	72,000	134,653	101,948	236,601
March	902,000	83,000	231,929	197,683	429,612
April	1,035,000	105,000	301,019	268,324	569,343
May	1,146,000	105,000	381,692	397,832	779,524
June	1,306,000	113,000	456,127	416,333	872,460
July	1,430,000	171,000	469,265	493,233	962,498
August	1,570,000	226,000	525,291	604,687	1,129,978
September ..	1,839,000	262,000	563,147	672,178	1,235,325
October	2,179,000	288,000	636,252	811,358	1,447,610
November ...	2,499,000	317,000	639,659	819,950	1,459,609
December ...	2,092,000	338,000	624,568	782,069	1,406,637
1919:					
January	1,636,000	240,000	512,749	503,053	1,015,802
February ...	1,315,000	147,000	282,353	358,230	640,583
March	880,000	130,000	278,865	215,169	494,034
April	499,000	75,000	252,525	132,841	385,366
Total .....	.....	.....	6,770,048	7,152,717	13,922,765

SUPPLIES PURCHASED IN EUROPE

Many supplies were purchased in Europe, thus saving cargo space. The total purchases in Europe to Dec. 31, 1918, amounted to 10,192,921 ship tons (40 cu. ft.) as compared with 7,675,410 ship tons of trans-Atlantic cargo unloaded. The sources of the cargo received by the A. E. F. to May 1, 1919, were as opposite:

	Short tons
United States	6,770,048
England	2,485,019
Other European sources....	4,667,698
Total	13,922,765

CLASSIFICATION OF CARGO RECEIVED BY THE A. E. F. TO MAY, 1, 1919

Class of Articles	Short Tons Received			Per cent. of Total Receipts
	From United States	From Europe	Total	
Coal and other fuel.....	0	3,668,476	3,668,476	26.4
Foodstuffs	1,554,774	200,354	1,755,128	12.6
Lumber and forest products...	45,000	1,583,670	1,628,670	11.7
Misc. Quartermaster supplies...	1,025,708	283,925	1,309,633	9.4
Ordnance	980,817	313,162	1,293,979	9.3
Engineer	600,094	684,436	1,284,530	9.2
Transportation	961,438	73,463	1,034,901	7.4
Forage	719,630	93,699	813,329	5.8
Motor transport	260,067	7,986	268,053	1.9
Miscellaneous	230,688	20,961	251,649	1.8
Medical	108,753	99,487	208,240	1.5
Air Service	120,344	82,860	203,204	1.5
Clothing	107,429	12,032	119,461	0.9
Signal	41,340	15,157	56,497	0.4
Chemical Warfare	13,966	13,049	27,015	0.2
Total	6,770,048	7,152,717	13,922,765	.....

III. FOREIGN HISTORY

SUMMARY OF PORT OPERATIONS OF THE A. E. F.

Groups of Ports	Vessel Berths				Total Short Tons Discharged to May 1, 1919	Average Short Tons Per Day October, 1918	Estimated Daily Discharge Capacity July 1, 1919	Per cent. of Total Discharge
	Constructed by A. E. F.	Assigned by French	Total Available Nov. 11, 1918	Program for July 1, 1919				
Bordeaux Group:								
Fr. Bassens	..	10	10	10				
Am. "	10	..	10	10				
Blaye	..	..	..	2	2,196,970	6,656	26,200	23.5
Paulliac	..	2	2	6				
Sursol	..	..	..	2				
Talmont	..	..	..	10				
St. Nazaire Group:								
St. Nazaire	..	14	14	14				
Montoir	..	..	..	8	2,552,323	7,343	18,500	27.3
Donges	..	..	..	4				
Marseilles Group:								
Marseilles	..	9	9	13				
Cette	..	..	..	4	487,301	2,947	15,000	5.2
Toulon	..	3	3	3				
La Pallice Group:								
La Pallice	..	7	7	7				
La Rochelle	..	2	2	2	1,415,776	4,641	13,200	15.2
Marans	..	..	..	1				
Tonnay	..	..	..	..
Charante	..	2	2	2				
Rocheftort	..	4	4	6				
Brest Group:								
Brest	2	2	4	7				
Granville	..	1	1	2	740,219	1,437	11,000	7.9
St. Malo	..	2	2	4				
Lorient	..	..	..	1				
Nantes	..	8	8	14	906,455	3,350	7,000	9.7
Le Havre Group:								
Le Havre	..	8	8	11				
Honfleur	..	..	..	1	563,261	1,721	4,000	6.0
Caen	..	2	2	2				
Bayonne	..	2	2	5	98,433	448	2,500	1.1
Rouen	..	..	..	6	210,379	831	2,000	2.3
Les Sables	..	7	7	7	53,398	254	1,600	0.6
Cherbourg	..	..	..	4	7,195	33	.....	0.1
Rotterdam	..	..	..	..	58,393	.....	.....	0.6
Antwerp	..	..	..	..	42,724	.....	.....	0.5
Total	12	85	97	168	9,332,827	29,661	101,000	.....

III. FOREIGN HISTORY

PORTS USED BY A. E. F. TROOPS

Almost half the A. E. F. landed in British ports and were transshipped to France, often landing in Liverpool in the morning and reaching France the same night.

Leaving U. S.	Number	Arriving in England	Number	Arriving in France	Number
Quebec	11,000	Glasgow	45,000	Le Havre	13,000
Montreal	34,000	Manchester ..	4,000	Brest	791,000
St. Johns	1,000	Liverpool	844,000	St. Nazaire	198,000
Halifax	5,000	Bristol ports..	11,000	La Pallice	4,000
Portland	6,000	Falmouth	1,000	Bordeaux	50,000
Boston	46,000	Plymouth	1,000	Marseilles	1,000
New York	1,656,000	Southampton ..	57,000		
Philadelphia	35,000	London	62,000	Total	1,057,000
Baltimore	4,000				
Norfolk	288,000				
Total	2,086,000	Total	1,025,090	Italy	2,000

ANIMALS IN THE A. E. F.

In April, 1917, there were three permanent remount depots in the United States, besides one auxiliary remount depot and a purchasing headquarters. Thirty-three additional remount depots and two animal embarkation depots were established. The total expenditure for horses and mules was \$115,957,000. The purchases in the United States and Europe were as follows:

Horses:	
Cavalry	90,903
Light artillery	176,401
Heavy artillery	56,454
Total	323,758
Mules:	
Draft	136,911
Pack and riding.....	20,848
Total	157,759
Total horses and mules...	481,517

The total animals received in the A. E. F. to May 1, 1919, were as follows:

Received from	Horses	Mules	Total
United States	38,773	28,952	67,725
Great Britain	13,602	7,657	21,259
France	126,922	8,992	135,914
Spain	1,823	16,639	18,462
Total	181,120	62,240	243,360

The total forage received was 734,293 tons of oats, bran, and hay from the United States and 90,117 tons of hay from Europe. The A. E. F. constructed remount depots and veterinary hospitals to house 44,200 animals and took over from the French space for 23,100. The mortality among horses and mules was very high, as shown by the following table from April 6, 1917, to Dec. 31, 1918:

	Horses	Mules	Total
In America..	24,144	6,040	30,184
Abroad	37,615	5,667	43,282
Total	61,759	11,707	73,466

STORAGE OF SUPPLIES IN THE A. E. F.

	Day's Supply	Sq. ft. per Man
Estimated requirements	90	21
Experience and storage under canvas reduced to.....	90	9
Reduction of submarine menace reduced to..	45	4.5

The above estimate does not include stores in transit. Of covered storage

space, 90 per cent. was built and 10 per cent. taken over from the French. The total covered storage space built or acquired by the A. E. F. was as follows:

	Square feet
General storage depots.....	15,329,372
Dock storage	3,028,438
Miscellaneous storage.....	7,603,334
Total	25,961,144

III. FOREIGN HISTORY

MOTOR VEHICLES IN THE A. E. F., TO MAY 1, 1919

Motor transport was about 90 per cent. of the total in the A. E. F. Each division had in its various trains 650 vehicles. The A. E. F. required 49 truck tons per 1,000 men.

	Re- ceived from U. S.	Re- ceived from Europe	Total
Passenger Vehicles:			
Bicycles	27,726	.....	27,726
Reconnaissance.	767	.....	767
Ambulances	7,239	20	7,259
Motorcycles	21,611	1,300	22,911
Motor cars.....	9,515	755	10,270
Omnibuses	16	2	18
Total	66,874	2,077	68,951
Cargo Trucks:			
Light delivery.	10,011	45	10,056
5-ton and over.	2,650	82	2,732
1½- and 2-ton.	12,656	804	13,460
3- and 4-ton...	19,158	2,611	21,769
Total	44,475	3,542	48,017
Special-type Vehicles:			
Caterpillar	2,240	.....	2,240
Artillery repair	783	.....	783
Artillery supply	556	.....	556
Equipment and repair	123	.....	123
Anti - aircraft and trucks.	30	.....	30
Machine - shop trailers	106	16	122
Tank trucks...	793	173	966
Machine - shop trucks	131	32	163
Trailers	3,818	1,902	5,720
Laboratory trucks	92	52	144
Kitchen trailers	174	114	288
Tractors	144	139	283
Fire engine and disinfection.	17	24	41
Winch trucks..	.....	73	73
Total	9,007	2,525	11,532
Grand total..	120,356	8,144	128,500

The total purchases of gasoline for motor transport in the A. E. F. to Dec. 31, 1918, amounted to 703,104 bbl., valued at \$10,104,437. For the United States the purchases were 484,282 bbl., valued at \$5,448,570. The total consumption of motor car gasoline from Jan. 1, 1918, to May 1, 1919, was 87,663,056 gal.

TRANSPORTATION EQUIPMENT OF THE A. E. F.

A. E. F. transportation service began in June, 1917, at one port, St. Nazaire, with less than 1,000 personnel. In November, 1918, cargo was being unloaded at 30 ports, and the personnel totalled 53,360. Average daily tonnage increased from 767 tons in July, 1917, to 29,661 tons in October, 1918. The dock and railroad equipment received was as follows, to May, 1919:

	From U. S.	From Europe	Total
Gantry cranes.	40	.....	40
Floating der- ricks	5	.....	5
Standard-gauge cars	18,664	1,033	19,697
Standard-gauge locomotives.	1,508	359	1,867 ¹
Tenders and tugs	26	12	38
Barges ² and lighters	132	118	250
Locomotive cranes	32	127	159

¹ Does not include 500 German locomotives, but does include 175 American consolidated locomotives turned over to the French. ² 391,857 short tons were transported on French inland waterways.

FOOD RATIONS AND CONSUMPTION IN THE ARMY, JUNE 1, 1917, TO APRIL 30, 1919

The soldier gained an average of 12 lb. while in the Army. The garrison ration weighs 4.5 lb. The average consumption per man per day in the A. E. F. was 4.3 lb. In 1898, the ration cost 13 cents per day; in 1918, 48 cents per day. The average cost per day to feed the entire Army at its height was \$2,500,000. The total value of food shipped from the United States to December, 1918, was \$327,060,097; it comprised 84 per cent. of the total food consumption.

Ration Component	Pounds issued	Total Pounds Issued
Potatoes	1.25	620,517,252
Meat	1.25	581,135,722
Flour	1.00	464,507,910
Sugar	0.20	130,201,980
Fruit	0.188	123,027,018
Beans	0.1	97,546,172
Milk	0.0625	52,547,797
Coffee	0.07	43,221,020
Rice and hominy	0.075	39,716,466
Butter	0.0312	37,233,542
Tobacco	0.025	31,107,466
Salt	0.04	26,107,637
Candy	0.05	24,301,860
Vinegar	0.04	18,431,576
Soup .....	.....	12,029,125
Baking powder.	0.005	2,800,955
Pepper	0.00125	1,049,175
Flavoring ext.	0.000875	711,076
Cinnamon	0.000875	482,019
Total .....	.....	2,306,675,768

III. FOREIGN HISTORY

CLOTHING AND EQUIPAGE, APRIL 6, 1917, TO NOV. 11, 1918

	Produced	Shipped Overseas	Issued, June 1, 1917, to April 30, 1919	Consumption Rate Per Man Per Year
Blankets	19,419,000	3,127,000	6,049,215	4.1
Coats, denim	10,238,000	3,423,000	2,437,298	1.6
Coats, wool	12,365,000	3,871,000	5,756,204	3.8
Drawers, summer	38,118,000	3,889,000	1,694,205	1.2
Drawers, winter	33,766,000	10,812,000	12,236,788	8.3
Overcoats	7,748,000	1,780,000	2,778,070	1.9
Shirts, flannel	22,198,000	6,401,000	6,768,190	4.6
Shoes, marching and field....	26,423,000	9,136,000	7,381,700	5.
Stockings, wool, light and heavy	89,871,000	29,733,000	{ Heavy, 21,370,029 { Light, 3,223,284	14.6 4.3
Trousers and breeches, wool....	17,342,000	6,191,000	9,071,701	6.
Undershirts, summer	40,895,000	4,567,000	1,297,401	.9
Undershirts, winter	28,869,000	11,126,000	12,796,376	8.8

ARTILLERY AND SMALL-ARMS PROCUREMENT OF A. E. F. TO MAY 1, 1919

	From United States	From Europe	Total
Artillery:			
4.7-in. gun	71		71
5-in. seacoast gun	26		26
6-in. seacoast gun	74		74
8-in. seacoast gun	6		6
10-in. seacoast gun	15		15
12-in. seacoast mortar	6		6
14-in. naval	8		8
8-in. and 9.2-in. howitzer	88	160	248
75-mm. A. A.	18	66	84
75-mm. field gun	160	1,862	2,022
155-mm. howitzer	2	796	798
155-mm. gun		233	233
12-in. seacoast gun			
240-mm. howitzer			
Total	474	3,117	3,591
Trench warfare:			
3-in. Stokes mortar	845	854	1,699
6-in. Newton mortar	48	413	461
58-mm. mortar		136	136
240-mm. mortar		107	107
Total	893	1,510	2,403
Small arms:			
Rifles	1,761,000		1,761,000
Pistols and revolvers	560,000		560,000
Machine guns	44,111	5,255	49,366
Automatic rifles	43,368	35,229	78,597
37-mm. gun	60	641	701
Total	2,408,539	41,125	2,449,664

RIFLE PRODUCTION TO NOV. 9, 1918

The United States started the war with the following rifle reserve:

Production to Nov. 9, 1918, was:

		Enfield	Springfield
Springfield	600,000		
Krags	160,000		
Ross (purchased from Canada)	20,000		
Russian orders undelivered....	280,049		
Total	1,060,049		
		Before August, 1917	16,666
		Aug. 1, 1917, to Nov. 9, 1918	2,193,429
		Total	2,506,307
			329,544

III. FOREIGN HISTORY

MACHINE-GUN PRODUCTION TO END OF 1918

In 1912 Congress sanctioned four machine guns per regiment. In 1919 new Army plans provide 336 per regiment.

Type	Total Produced	American-Made Arms	
		Used at the Front	Total, Used in France Including Training
Heavy Browning field	56,612	1,168	3,528
Vickers field	12,125	2,340	2,860
Other field	6,366	.....	.....
Lewis aircraft	39,200	1,393	3,930
Browning aircraft	580	.....	.....
Marlin aircraft	38,000	1,220	3,084
Vickers aircraft	3,714	1,320	1,625
Light Browning	69,960	4,608	17,664
Total	226,557	12,049	32,691

AMMUNITION PROCUREMENT OF A. E. F. TO NOV. 11, 1918

	Rounds Received		
	From United States	From Europe	Total
Artillery ammunition	5,533,692	10,398,703	15,932,395
Trench-warfare ammunition	371,840	6,984,225	7,356,065
Small-arms ammunition	1,423,222,000	231,034,000	1,654,256,000

TOTAL AMMUNITION PRODUCTION FOR ARMY, BY MONTHS

	Artillery	Small Arms		Artillery	Small Arms
Nov., 1917.. }	1,427,000	156,102,792	July, 1918..	1,085,000	2,306,999,284
Dec., 1917.. }		351,117,928	Aug., 1918..	2,091,000	2,623,847,546
Jan., 1918....	376,000	573,981,712	Sept., 1918..	2,558,000	2,942,875,786
Feb., 1918....	586,000	760,485,688	Oct., 1918..	3,072,000	3,236,396,100
March, 1918..	842,000	1,021,610,958	Nov., 1918..	2,592,000	3,507,023,300
April, 1918...	1,130,000	1,318,298,492	Dec., 1918..	2,024,000	3,741,652,200
May, 1918....	1,194,000	1,616,142,052	Jan., 1919..	.....	3,940,682,744
June, 1918....	1,341,000	1,958,686,784	Total	20,318,000	30,045,903,366

ARTILLERY TRACTORS IN THE A. E. F.

Size of Tractor	Caliber and Type of Artillery	Horses Replaced	Number Ordered	Number Received		
				From U. S.	From Europe	Total
2½-ton	{ 75-mm. field gun.....	4-6	5,586	1	.....	1
	{ 3-in. A. A. & field gun					
5-ton	{ 4.7-in. field gun.....	8	11,150	450	.....	450
	{ 155-mm. howitzer ...					
10-ton	{ 155 mm. gun .....	.....	6,623	643	.....	643
	{ 9.2-in. & 240-mm. hwz.					
15-ton	5- and 6-in. seacoast gun	.....	267	226 }	350	649
20-ton	8-in. howitzer .....	.....	1,165	73 }		
Total.		.....	24,791	1,393	350	1,743

TANKS IN THE A. E. F.

An American produced the fundamental invention of the tank, the caterpillar tractor. A French ordnance officer applied it to war uses. The British Navy first produced tanks in England, and the British Army had the honor of first using them in battle, that of Cambrai. The

American Tank Corps did all its fighting in foreign-built tanks. The total received by the A. E. F. to Nov. 11, 1918, were:

British 30-ton tank..... 26
French 6-ton tank..... 239

III. FOREIGN HISTORY

CHEMICAL WARFARE SERVICE

The American Chemical Warfare Service was created on June 28, 1918. One regiment of gas and incendiary troops operated at the front, and two more were being formed at the time of the armistice. American gas production to Nov. 1, 1918, was as follows, in short tons:

Gas	Total tons	Shipped to A. E. F. tons	Gas	Total tons	Shipped to A. E. F. tons
Liquid chlorine	2,723	1,488	Brombenzyl cyanide...	5	.....
Gaseous chlorine	1,104	.....	White phosphorus.....	1,006	171
Chlorpicrin	2,776	1,903	Tintetrachloride	695	106
Phosgene	1,616	420	Titanium tetrachloride	181	.....
Mustard oil	711	190			

CHEMICAL WARFARE PROCUREMENT IN THE A. E. F.

	Received from		Total
	United States	Europe	
Defensive supplies:			
Box respirators	3,763,721	613,623	4,377,344
Spare canisters	1,686,907	405,990	2,092,897
Sag paste, tubes	3,148,391	793,080	3,941,471
Chloride of lime, tons	1,860	786	2,646
Horse respirators	354,665	166,407	521,072
Klaxon horns	19,691	11,680	31,371
Dug-out blankets, yd.	23,542	216,906	240,448
Anti-dimming compound, tubes	100,000	2,277,030	2,377,030
Police rattles .....	.....	83,067	83,067
Protective gloves .....	.....	451,246	451,246
Offensive supplies:			
Projectors, Livens 4'	5,278	2,754	8,032
Projectors, Livens 2' 9"	7,972	13,842	21,814
Drums, Gasfilled C. G. ....	.....	25,833	25,833
Drums, Gasfilled N. C. ....	.....	10,438	10,438
Stokes mortars, 4" .....	.....	216	216
Bombs, Gas, 4" .....	.....	74,336	74,336
Bombs, Smoke, W. P. ....	.....	17,248	17,248
Bombs, Thermite, 4" .....	.....	14,644	14,644

THE AMERICAN AIR SERVICE

The U. S. Army possessed at the outbreak of the War five officer aviators. By April 6, 1917, the number was 65, with 1,330 enlisted and civilian men and 224 obsolete planes. Congress appropriated \$694,250,000 for air service during the War. 13,200 cadets and 9,075 students attended flying schools. 16,952 planes were received from the following:

Italian	59
English	258
French	4,881
United States	11,754
Total	16,952

Engine production to Nov. 29, 1918, was as follows:

OX (Curtiss) 8,458	Gnome ... 280
Hispano-Suiza ... 4,100	A 7 A... 2,250
Le Rhone... 1,298	Bugatti .. 11
Lawrence ... 451	Liberty .. 15,572
	Total 32,420

On Nov. 11, 1918, each of the 23 balloon companies at the front had one balloon in service and one in reserve, of 275 received in the A. E. F.

AMERICAN AIR SERVICE SQUADRONS AT THE FRONT, BY MONTHS

Squadrons equipped with from 15 to 25 planes

Date	No.	Date	No.
April 30, 1918	3	Aug. 31, 1918.	26
May 31.....	12	Sept. 30.....	32
June 30.....	13	Oct. 31.....	43
July 31.....	14	Nov. 11.....	45

COMBAT RECORD OF AMERICAN AIR SERVICE DURING PERIOD OF THE WAR

Enemy planes brought down:	
Confirmed	491
Unconfirmed	354
Total	845
American planes lost.....	271
Enemy balloons destroyed:	
Confirmed	57
Unconfirmed	25
Total	82
American balloons lost.....	45

III. FOREIGN HISTORY

AVIATION FIELDS IN THE UNITED STATES

Field	Location	Status, Oct. 7, 1919	Field	Location	Status, Oct. 7, 1919
Barron ...	Everman, Tex....	4	March	Riverside, Cal....	3
Bolling	Anacostia, D. C....	5	Mather	Sacramento, Cal...	3
Brooks	San Antonio, Tex...	3	Mitchell ...	Mineola, N. Y....	3
Call	Wichita Falls, Tex.	6	New Dorp...	Staten Island, N.Y.	1
Carlstrom ..	Arcadia, Fla.....	3	Parks	Millington, Tenn..	3
Carruthers ..	Benbrook, Tex....	4	Payne	West Point, Miss..	4
Chapman ..	—, Fla.....	3	Post	Fort Sill, Okla....	1
Chanute	Rantoul, Ill.....	3	Rich	Waco, Tex.....	4
Dorr	Arcadia, Fla.....	3	Rockwell ..	San Diego, Cal....	1
Eberts	Loanoke, Ark.....	4	Scott	Belleville, Ill....	3
Ellington ..	Houston, Tex.....	3	Selfridge ..	Mt. Clemens, Mich.	3
Gerstner ...	Lake Charles, La..	4	Souther ...	Americus, Ga.....	1
Hazelhurst ..	Mineola, N. Y....	3	Taylor	Montgomery, Ala..	4
Kelly, No. 1	San Antonio, Tex..	1	Taliaferro ..	Hicks, Tex.....	4
Kelly, No. 2	San Antonio, Tex..	3	Wilbur		
Langley ...	Hampton, Va.....	1	Wright	Fairfield, Ohio....	4
Love	Dallas, Tex.....	4			

AVIATION GENERAL SUPPLY DEPOTS AND BALLOON SCHOOL

Middletown, Pa.....	2	Montgomery, Ala.....	1
Richmond, Va.....	1	Fairfield, Ohio.....	1
San Antonio, Tex.....	1	Garden City, N. Y.....	5
Morrison, Va.....	4	Arcadia, Cal.....	3
Dallas, Tex.....	5	Lee Hall, Va.....	1

1, owned by U. S. 2, being purchased. 3, purchase suspended by act of Congress. 4, retained temporarily, to be abandoned later. 5, retained temporarily. 6, sold or salvaged.

AIRPLANES USED BY THE A. E. F. TO JAN. 1, 1919, BY TYPE

Combat planes were all of foreign make, American types delivered being suitable only for training, observation, and bombing.

Type	Most Important Makes Used	Nationality	Number Received	Total Procurement (52 Types)		
				From United States	From Europe	Total
Pursuit and combat	Spad	French	1,097	0	1,153	1,153
	S E-5	English	32			
	S. I. A.	Italian	19			
Observation	Breguet	French	369	1,443	833	2,276
	Salmson	French	678			
	A. R. 1 and 2	English	142			
	DeHaviland-4	American	1,440	0	379	379
Bombing	Breguet	French	See Observation			
	DeHaviland-4	American				
	Voisan	French	10	0	2,816	2,816
Training				0	2,816	2,816
	Total			1,443	5,181	6,624

COMPARATIVE AIRPLANE STRENGTH AT THE FRONT, NOV. 11, 1918

Army	Combat and Pursuit	Observation	Bombardment	Total
Belgian	45	100	8	153
Austrian	220	391	11	622
American	330	293	117	740
Italian	336	360	116	812
British	759	503	496	1,758
German	1,020	1,442	268	2,730
French	1,344	1,505	472	3,321
Total Allied				6,784
Total enemy				3,352

IV. THE NATIONAL GOVERNMENT

THE PRESIDENT AND VICE-PRESIDENT

President.—Woodrow Wilson, Democrat, of New Jersey, inaugurated twenty-eighth President of the United States on March 4, 1913, was re-elected on Nov. 7, 1916, for a second term of four years beginning March 4, 1917; term expires March 4, 1921.

The President and Vice-President are elected for terms of four years by the state electoral colleges, whose membership is based on the Congressional apportionment. This apportionment is revised after each decennial census, as shown in the table in the YEAR BOOK for 1912 (p. 159). The official figures of the popular and electoral votes, in the Presidential elections of 1908, 1912, and 1916 are given in the YEAR BOOK for 1916 (p. 170). The salary of the President is \$75,000, with an allowance of \$25,000 for traveling expenses.

Secretary to the President.—Joseph Patrick Tumulty, of New Jersey. The General Deficiency Appropriation Act continues the salary of the Secretary to the President at \$7,500 per year, to which it was raised from the statutory amount of \$6,000 in 1911 at the request of President Taft.

Vice-President.—Thomas Riley Marshall, Democrat, of Indiana, inaugurated Vice-President of the United States on March 4, 1913, was re-elected on Nov. 7, 1916, for a second term of four years beginning March 4, 1914; term expires March 4, 1921.

The Vice-President presides over the Senate, with no vote except in case of a tie. His salary is \$12,000. The President *pro tempore* of the Senate, who presides in the absence of the Vice-President, is Senator Albert B. Cummins (Iowa).

EXECUTIVE DEPARTMENTS

Ten Cabinet officers, constituting the President's advisory council, each in charge of one of the great Departments of the Government, are nominated by the President and confirmed by the Senate, for a term subject to the President's pleasure. The salary of the Cabinet officers is \$12,000 each.

Only the Postmaster-General, Secretary of the Navy, and Secretary of Labor remain of the original Cabinet of President Wilson confirmed on March 5, 1913. The heads of the other Departments were appointed as fol-

lows: State, 1920; Treasury, 1920 (present Secretary of original Cabinet but transferred from Department of Agriculture); War, 1914; Justice, 1919; Interior, 1920; Agriculture, 1920; Commerce, 1919.

By Act of Congress, in the case of vacancy in office of President through the death or removal of both President and Vice-President, the Cabinet officers succeed to the Presidency in the order indicated in the following summary of the organization of the executive departments.

DEPARTMENT OF STATE

Secretary of State.—Bainbridge Colby, N. Y.

Robert Lansing, Secretary of State since 1915, resigned on Feb. 12, 1920. Bainbridge Colby, N. Y., was nominated on Feb. 20.

Charged with negotiations relating to foreign affairs.

Under-Secretary.—Frank Lyon Polk, N. Y. \$7,500.

The office of Under-Secretary of State was created by the Legislative, Executive, and Judicial Appropriation Act of March 1, 1919, the former office of Counselor being abolished thereby. Mr. Polk, formerly Counselor, was reappointed Under-Secretary.

Assistant Secretary.—William Phillips, Mass. \$5,000.

Second Assistant Secretary.—Alvey A. Adee, D. C. \$4,500.

IV. THE NATIONAL GOVERNMENT

Third Assistant Secretary.—Breckinridge Long, Mo. \$4,500.

Director of the Consular Service.—Wilbur J. Carr, N. Y. \$4,500.

Solicitor.—Lester H. Woolsey, N. Y. \$5,000.

Foreign Trade Adviser.—Julius G. Lay, acting.

Bureau of Accounts.—Chief, William McNeir, D. C. \$2,450.

Bureau of Appointments.—Chief, Miles M. Shand, N. J. \$2,100.

Division of Passport Control.—Chief, Charles B. Walsh, Pa. \$2,100.

Formerly the Bureau of Citizenship. Mr. Walsh was appointed in 1919, succeeding Richard W. Flournoy.

Consular Bureau.—Chief, Herbert C. Hengstler, O. \$3,000.

Diplomatic Bureau.—Chief, Wallach A. McCathran, D. C. \$2,100.

Mr. McCathran was appointed in 1919, succeeding Sydney Y. Smith.

Bureau of Indexes and Archives.—Chief, David A. Salmon. \$2,500.

Bureau of Rolls and Library.—Chief, John A. Tonner, O. \$2,100.

Division of Latin-American Affairs.—Chief, Leo S. Rowe, Pa. \$4,500.

Dr. Rowe, formerly Assistant Secretary of the Treasury, was appointed on Oct. 1, succeeding Jordan H. Stabler.

Division of Mexican Affairs.—Chief, Charles M. Johnston, N. Y. \$4,500.

Mr. Johnston was appointed in 1919.

Division of Far-Eastern Affairs.—Chief, John Van A. MacMurray, N. Y. \$4,500.

Mr. MacMurray was appointed in 1919, succeeding Ransford S. Miller.

Division of Near-Eastern Affairs.—Acting Chief, Sheldon Whitehouse.

Mr. Whitehouse was appointed in 1919, succeeding Albert H. Putney.

Division of Western European Affairs.—Acting Chief, Albert B. Ruddick, Ill.

Mr. Ruddick was appointed in 1919, succeeding Joseph C. Grew, appointed Secretary of the American Peace Commission.

TREASURY DEPARTMENT

Secretary of the Treasury.—David Franklin Houston, Mo.

Mr. Houston, formerly Secretary of Agriculture, was confirmed as Secretary of the Treasury on Jan. 31, 1920, succeeding Carter Glass, appointed Senator from Virginia for the balance of the term of Senator Thomas S. Martin, deceased, expiring in 1925.

Charged with management of the national finances. He prepares plans for improvement of the revenue and support of the public credit; superintends collection of the revenue; grants warrants for all moneys paid from and into the Treasury; controls construction of public buildings; coinage and printing of money; and the administration of the Coast Guard and the Public Health Service; *ex officio* chairman of the Federal Reserve

Board, of the Federal Farm Loan Board, and of the War Finance Corporation; chairman of the United States section of the International High Commission.

Assistant Secretaries.—James H. Moyle, Utah, in charge of public buildings and miscellaneous; R. C. Leffingwell, N. Y., in charge of fiscal offices; Jouett Shouse, Kan., in charge of internal revenue, war-risk insurance, and customs; Norman H. Davis, Tenn., in charge of foreign loans; Albert Rathbone, N. Y., on special mission abroad, \$5,000 each.

Mr. Davis was confirmed in November, succeeding Leo S. Rowe, resigned.

Assistant to the Secretary.—George R. Cooksey, D. C. \$5,000.

Supervising Architect.—James A. Wetmore, acting. \$5,000. Charged with superintending the construction and repair of public buildings.

Engraving and Printing.—Chief of Bureau, James L. Wilmeth, Ark., \$6,000. Produces all the securities and similar work of the Government printed from steel plates.

Secret Service.—Chief, Wm. H. Moran. \$4,500. Charged with detection of counterfeiting, and similar frauds on the Government.

Comptroller of the Treasury.—Walter W. Warwick, O. \$6,000. Construes the laws relating to appropriations and methods of rendering and stating accounts.

Treasurer of the United States.—John Burke, N. D. \$8,000. Charged with the receipt and disbursement of all public moneys deposited in the Treasury and sub-treasuries and in national bank depositories.

Comptroller of the Currency.—John Skelton Williams, Va. \$5,000. Has supervision of the national banks, their examination and reports; the preparation and issue of national bank circulation; the redemption and destruction of national bank notes. *Ex officio* a member of the Federal Reserve Board; and in this capacity draws a salary of \$7,000 in addition to the salary of \$5,000 attached to the office proper.

Internal Revenue.—Commissioner, Daniel C. Roper, S. C. \$10,000. General supervision of the collection of all internal revenue taxes, including the income tax, and the enforcement of internal revenue and national prohibition laws.

The Mint.—Director, Raymond J. Baker, \$5,000. General supervision of the mints and assay offices.

Farm Loan Board.—Created to administer the Federal farm-loan system. Composed of the Secretary of the Treasury, chairman *ex officio*, and four appointive members (full term, eight years; salary \$10,000 per annum). The appointive members of the Board, with the terms for which they are commissioned, are as follows: George W. Norris, Pa., Farm Loan Commissioner (to 1920); Asbury F. Lever, S. C. (to 1924); W. S. A. Smith, Iowa (to 1922); Charles E. Lobbell, Kan. (to 1926). Secretary, W. W. Flannagan.

Mr. Lever, formerly Representative from South Carolina, was appointed in

IV. THE NATIONAL GOVERNMENT

1919 for the unexpired term of Herbert Quick, resigned.

Public Health Service.—Surgeon-General, Hugh S. Cumming, \$6,000. Charged with the framing and enforcement of regulations for the prevention of the introduction and spread of contagious diseases, including venereal diseases; supervision of the quarantine service of the United States, and of the marine hospitals; scientific research in public health and hygiene; promotion of popular health education.

Coast Guard.—Commodore Commandant, Wm. E. Reynolds. \$5,000.

Commodore Reynolds was appointed in 1919, succeeding Ellsworth P. Bertholf, resigned.

Bureau of War-Risk Insurance.—Director, Col. R. A. Cholmeley-Jones. Administers the allotments and allowances to dependents of soldiers and sailors and compensation and insurance for soldiers and sailors.

Col. Cholmeley-Jones was appointed on May 19, succeeding Col. D. L. Lindsley, resigned.

WAR DEPARTMENT

Secretary of War.—Newton Diehl Baker, Ohio.

Charged with supervision of national defense and expenditures for military purposes.

Assistant Secretary of War.—Benedict Crowell, Ohio. \$5,000.

Second Assistant Secretary of War.—Vacant.

The General Staff.—Chief of Staff, Gen. Peyton C. March. \$10,000. Charged with preparation of plans for the national defense, and the promotion of the efficiency of the Army.

The chiefs of the military bureaus are as follows:

Adjutant-General.—Major-Gen. P. C. Harris. \$8,000.

Inspector-General.—Major-Gen. John L. Chamberlain. \$8,000.

Judge-Advocate-General.—Major-Gen. E. H. Crowder. \$8,000.

Quartermaster-General.—Major-Gen. Harry L. Rogers. \$8,000.

Surgeon-General.—Major-Gen. Merritte W. Ireland. \$8,000.

Chief of Coast Artillery.—Major-Gen. Frank W. Coe. \$8,000.

Chief of Engineers.—Major-Gen. Lansing H. Beach. \$8,000.

General Beach was confirmed on Feb. 4, succeeding Major-Gen. Wm. M. Black, retired.

Chief of Ordnance.—Major-Gen. Clarence C. Williams. \$8,000.

Chief Signal Officer.—Major-Gen. George O. Squier. \$8,000.

Chief of Bureau of Insular Affairs.—Major-Gen. Frank McIntyre. \$8,000.

Chief of Militia Bureau.—Major-Gen. Jesse McL. Carter. \$8,000.

Chief of Field Artillery.—Major-Gen. Wm. J. Snow. \$8,000.

Director of Military Aeronautics.—Brig.-Gen. William Mitchell. \$6,000.

Director of Air Service.—Major-Gen. Charles T. Menoher. \$8,000.

DEPARTMENT OF JUSTICE

Attorney-General.—A. Mitchell Palmer, Pa.

A. Mitchell Palmer was born at Stroudsburg, Pa., May 4, 1872. He was educated in the public schools, the Moravian Parochial School, at Bethlehem, Pa., and Swarthmore College, from which he was graduated in 1891. In 1892 he was appointed official stenographer of the Forty-third Judicial District of Pennsylvania, and in 1893 was admitted to the bar, forming a partnership at Stroudsburg with John B. Storm, which continued until the latter's death in 1901. Mr. Palmer entered Congress as Representative of the Twenty-sixth District of Pennsylvania in 1909 and served until 1915. In October, 1917, he was appointed Alien Property Custodian, and held this office until his resignation on March 5, 1919, to assume the duties of Attorney-General, succeeding Thomas Watt Gregory, who resigned March 4. Mr. Palmer was nominated on Feb. 27 and took the oath of office on March 5, although his nomination was not confirmed until Aug. 20. He was succeeded as Alien Property Custodian by Francis P. Garvan.

Represents the United States in all legal matters.

Solicitor-General.—Alexander C. King, Ga. \$10,000. Charged with the business of the Government in the Supreme Court and in state courts.

Assistant to the Attorney-General.—Charles B. Ames, Okla. \$9,000. Charged with matters arising under the Federal anti-trust and interstate commerce laws.

Mr. Ames was appointed in 1919, succeeding George Carroll Todd.

Assistant Attorney-General.—One at \$8,000 (customs division) and six at \$7,500.

Bureau of Investigation.—Director, Wm. J. Flynn, N. Y. \$7,500.

POST OFFICE DEPARTMENT

Postmaster-General.—Albert Sidney Burleson, Tex.

Has direction and management of the Post Office Department and postal service.

First Assistant Postmaster-General.—John C. Koons, Md. \$5,000. Divisions of post-office service, postmasters' appointments, and dead letters.

Second Assistant Postmaster-General.—Otto Praeger, Tex. \$5,000. Divisions of railway mail service, foreign mails, railway adjustments, railways mail-pay statistics, and aerial mail service.

Third Assistant Postmaster-General.—Alexander M. Dockery, Mo. \$5,000. Divisions of finance, postal savings, money orders, classification, stamps, and registered mails.

Fourth Assistant Postmaster-General.—James I. Blakslee, Pa. \$5,000. Divisions of rural mails and equipment and supplies.

IV. THE NATIONAL GOVERNMENT

NAVY DEPARTMENT

Secretary of the Navy.—Josephus Daniels, N. C.

Charged with direction of the Navy and superintendence of construction, equipment, and employment of vessels of war.

Assistant Secretary.—Franklin D. Roosevelt, N. Y. \$5,000.

Office of Naval Operations.—Chief, Adm. Robert E. Coontz. \$10,000. Charged with the operations of the fleet and with the preparation and readiness of plans for its use in war.

Admiral Coontz was appointed on Sept. 24, succeeding Adm. Wm. S. Benson, retired, who later became Chairman of the Shipping Board.

Bureau of Yards and Docks.—Chief, Rear-Adm. Charles W. Parks. \$8,000. Charged with the construction and maintenance of drydocks, buildings, and other Navy structures.

Bureau of Navigation. Chief, Rear-Adm. Thomas Washington. \$8,000. Charged with all matters concerning the records, education, training, supervision, and distribution of the personnel of the U. S. Navy and of the U. S. Naval Reserve Force; undertakes marine surveys and provides charts and sailing directions for the Navy and merchant marine; supplies nautical and surveying instruments to ships and prepares and issues the *Nautical Almanac*.

Admiral Washington was confirmed on Aug. 5, succeeding Rear-Adm. Victor Blue.

Bureau of Ordnance.—Chief, Rear-Adm. Ralph Earle. \$8,000. Charged with supervision of the Torpedo Station, magazines on shore, and with the manufacture of explosives, arms and equipment for the Navy.

Bureau of Construction and Repair.—Chief Constructor, Rear-Adm. David W. Taylor. \$8,000. Charged with the design, construction, care, and repair of ships.

Bureau of Steam Engineering.—Engineer-in-Chief, Rear-Adm. Robert S. Griffin. \$8,000. Charged with designing, building and repairing machinery for naval ships.

Bureau of Supplies and Accounts.—Paymaster-General, Rear-Adm. Samuel McGowan. \$8,000. Charged with the supply of funds for disbursing officers, and the purchase of all naval supplies.

Bureau of Medicine and Surgery.—Surgeon-General, Rear-Adm. William C. Braisted. \$8,000. Control of naval hospitals and hospital ships.

Judge-Advocate-General.—Rear-Adm. George R. Clark. \$3,000. Charged with supervision of all legal aspects of the Navy personnel.

Marine Corps.—Commandant, Major-Gen. George Barnett. \$8,000.

General Board of the Navy.—Adm. R. E. Coontz; Rear-Adms. Charles J. Badger, A. S. Winterhalter, Wm. S. Sims, A. P. Niblack, and Joseph Strauss; Major-Gen. George Barnett; Capt. L. A. Cotten; Lieut.-Col. L. C. Lucas; Lieut.-Comdr. H. F. Kingman.

DEPARTMENT OF THE INTERIOR

Secretary of the Interior.—Franklin Knight Lane, Cal.

Mr. Lane resigned on Feb. 7, 1920.

Charged with patents, pensions, public lands and parks, education, Indian affairs, geological surveys, reclamation of arid lands, and mines, and railroad construction in Alaska.

First Assistant Secretary.—Alexander T. Vogelsang, Cal. \$5,000.

Assistant Secretary.—Selden G. Hopkins, Wyo., \$4,500.

General Land Office.—Commissioner, Clay Tallman, Nev. \$5,000. Charged with the survey, management and disposition of the public lands.

Patent Office.—Commissioner, James T. Newton, Ga. \$5,000. Administration of the patent laws, and supervision of the registration of trade-marks.

Pension Office.—Commissioner, ———. \$5,000. Supervision of adjudication of claims arising under laws granting Army or Navy service pensions prior to Oct. 6, 1917.

Gaylord M. Saltzgaber resigned in November. His successor has not been appointed.

Office of Indian Affairs.—Commissioner, Cato Sells, Tex. \$5,000. Has charge of the Indian tribes of the United States (exclusive of Alaska).

Bureau of Education.—Commissioner. Philander P. Claxton, Tenn. \$5,000. Collects statistics and general information regarding education; has charge of the schools for native Alaskan children; and administers the endowment fund for colleges of agriculture and mechanic arts.

Geological Survey.—Director, George Otis Smith, Me. \$6,000. Charged with classification of the public lands and examination of the geologic structure, mineral resources, and the mineral products of the national domain.

Reclamation Service.—Director and Chief Engineer, Arthur P. Davis. \$7,500. Charged with the survey, construction, and operation of the reclamation and irrigation works in arid states, authorized by the act of June 17, 1902.

Bureau of Mines.—Director, Vannoy H. Manning, Miss. \$6,000. To promote the mining industry of the United States, foster the safety of miners, and give attention to the treatment of ores and the use of explosives.

National Park Service.—Director, Steven T. Mather, Ill. \$4,500. Charged with the administration of the national parks and national monuments.

DEPARTMENT OF AGRICULTURE

Secretary of Agriculture.—Edwin Thomas Meredith, Iowa.

Edwin Thomas Meredith was born at Avoca, Iowa, Dec. 23, 1876. He was graduated from Highland Park College in

1894 and two years later became publisher at Des Moines of the *Farmers' Tribune*. In 1902 he founded *Successful Farming*, of which he has been since editor and publisher. Mr. Meredith was nominated on Jan. 27 and confirmed on Jan. 31, succeeding David Franklin Houston, appointed Secretary of the Treasury (see *supra*).

Exercises supervision over agricultural industry, experiment stations, quarantine stations for imported cattle, inspection of foods and drugs, national forest reserves, and interstate game laws.

Assistant Secretary.—James R. Riggs. \$5,000.

Mr. Riggs was appointed in 1919, succeeding Carl Vrooman, resigned.

Weather Bureau.—Chief, Charles F. Marvin, D. C. \$5,000. Charged with forecasting of weather for the benefit of agriculture, commerce and navigation.

Bureau of Animal Industry.—Chief, John R. Mohler, D. C. \$5,000. Conducts inspection of animals and meat food products; investigates communicable diseases and their prevention, and the breeding and feeding of animals.

Bureau of Plant Industry.—Chief, William A. Taylor, Mich. \$5,000. Charged with the improvement of crops by breeding and selection, and the introduction of new plants and seeds to different parts of the United States.

Forest Service.—Chief, Henry S. Graves, Conn. \$5,000. Charged with the administration of the national forests, the investigation of forest problems and encouragement of protecting growing timber.

Bureau of Chemistry.—Chief, Carl L. Alsberg, Mass. \$5,000. Charged with the analysis of agricultural products and fertilizers, and the investigation of the composition and adulteration of foods and drugs.

Bureau of Soils.—Chief, Milton Whitney, Md. \$4,000. Charged with investigating soils in their relations to climate and organic life.

Bureau of Entomology.—Chief, L. O. Howard, N. Y. \$5,000. Charged with dissemination of information regarding injurious insects affecting forests, crops and fruits, and means of their elimination.

Bureau of Biological Survey.—Chief, E. W. Nelson, Ariz. \$4,000. Investigates the economic relations of animal life. Charged with enforcing the bird and game laws.

Bureau of Crop Estimates.—Chief, Leon M. Estabrook, Tex. \$4,000. Collects and collates agricultural statistics and issues crop reports and forecasts.

States Relations Service.—Director, A. C. True, Conn. \$4,500. Charged with the supervision and promotion of agricultural education and the maintenance of agricultural experiment stations.

Bureau of Public Roads.—Chief, Thomas H. MacDonald, Iowa. \$6,000. Charged with investigating road making, road maintenance and road materials, the conduct of irrigation and drainage investiga-

tions, and the study of other rural engineering problems.

Mr. MacDonald was appointed in 1919, succeeding Logan Waller Page, died Dec. 9, 1918.

Bureau of Markets.—Chief, George Livingston, Ohio. \$5,000. Charged with the conduct of investigations of rural economics and cooperative organization.

Mr. Livingston was appointed in 1919, succeeding Charles J. Brand.

Office of Farm Management.—Chief, H. C. Taylor, Wis. \$5,000. Charged with the study and improvement of farm practice.

Dr. Taylor, formerly professor of agricultural economics in the University of Wisconsin, was appointed in 1919, the office having been vacant since the resignation of Wm. J. Spillman in 1918.

DEPARTMENT OF COMMERCE

Secretary of Commerce.—Joshua Willis Alexander, Mo.

Joshua Willis Alexander was born at Cincinnati, Jan. 22, 1852. He was educated in the public schools of Cincinnati and Canton, Mo., and Christian University, whence he was graduated in 1872. In 1873 he established his home in Gallatin, Mo., and in 1875 was admitted to the bar. From 1883 to 1888 he served in the General Assembly of Missouri, during his last term being Speaker of the House. He was Judge of the Seventh Judicial Circuit of Missouri from January, 1901, to February, 1907, when he resigned to enter Congress. He served continuously as Representative of the Third District of Missouri until his resignation as a member of the Sixty-sixth Congress, to become Secretary of Commerce in succession to William Cox Redfield, who resigned Nov. 1, Mr. Alexander was nominated on Dec. 4, was confirmed on Dec. 11, and took the oath of office on Dec. 16.

Charged with promoting commerce, mining, manufacturing, shipping, fisheries, and transportation.

Assistant Secretary.—Edwin F. Sweet, Mich. \$5,000.

Bureau of Foreign and Domestic Commerce.—Chief, Philip B. Kennedy, N. Y. \$6,000. Charged with the collection and publication of statistics of foreign and domestic commerce, the development of manufactures and markets therefore, by the publication of information, and the investigation of matters affecting the commercial interest of the United States.

Mr. Kennedy was appointed in 1919, succeeding Burwell S. Cutler, resigned.

Bureau of Lighthouses.—Commissioner, George R. Putnam, Ia. \$5,000. Charged with the administrative duties relating to lighthouses and protective signals.

Steamboat Inspection Service.—Super-
vising Inspector-General, George Uhler, Penn. \$5,000. Charged with the inspection of vessels, the licensing of officers, and the administration of laws relating to steam vessels and their officers.

IV. THE NATIONAL GOVERNMENT

Census Bureau.—Director, Samuel L. Rogers, N. C. \$7,000 during decennial census period, \$6,000 regular salary. The duty of the Census Office is to take, compile and publish the decennial census of the United States; the quinquennial census of agriculture and manufactures; the deaths in registration areas; the statistics of cotton ginned and of cotton consumed; the annual statistics of cities; and to make such other statistical investigations as Congress may order.

Coast and Geodetic Survey.—Superintendent, E. Lester Jones, Va. \$6,000. Charged with survey of coasts under the jurisdiction of the United States, and publication of navigation charts covering these coasts.

Bureau of Fisheries.—Commissioner, Hugh M. Smith, D. C. \$6,000. Charged with the propagation of useful food fishes, investigation of deep sea fishing grounds, and care of the Alaska salmon fisheries and the Pribilof Islands seals.

Bureau of Navigation.—Commissioner, Eugene T. Chamberlain, N. Y. \$4,000. Charged with superintendence of the commercial marine, issue of licenses, and collection of tonnage taxes.

Bureau of Standards.—Director, Samuel W. Stratton, Ill. \$6,000. Charged with comparing and testing standards used in scientific investigations, commerce and educational institutions with standards adopted or recognized by the Government.

DEPARTMENT OF LABOR

Secretary of Labor.—William Bauchop Wilson, Pa.

Charged with the duty of fostering, promoting and developing the welfare of the wage earners of the United States.

Assistant Secretary.—Louis F. Post, Ill. \$5,000.

Division of Conciliation.—Director, Hugh L. Kerwin, Pa. \$5,000.

Bureau of Immigration.—Commissioner-General, Anthony Caminetti, Cal. \$5,000. Charged with administration of immigration laws.

Bureau of Naturalization.—Commissioner, Richard K. Campbell, Va. \$4,000. Charged with administration of the naturalization laws.

Bureau of Labor Statistics.—Commissioner, Royal Meeker, N. J. \$5,000. Charged with the duty of acquiring and diffusing information concerning labor in its relations to capital and means of promoting prosperity among the laboring classes.

Children's Bureau.—Chief, Julia C. Lathrop, Ill. \$5,000. Charged with the investigation of all matters pertaining to the welfare of children and child life.

Women's Bureau.—Director, Mary Anderson, Ill. \$5,000.

United States Employment Service.—Director-General, John B. Densmore. \$6,000.

Bureau of Industrial Housing and Transportation.—Director, Leroy K. Shirman.

INDEPENDENT BUREAUS AND INSTITUTIONS

Interstate Commerce Commission.—Nine members, each receiving an annual salary of \$10,000; appointed for a term of seven years. Expiration of term indicated. Clyde B. Aitchison, Ore., Chairman, 1923; Harry C. Hall, Col., 1921; Balthasar H. Meyer, Wis., 1924; James S. Harlan, Ill., 1925; Edgar E. Clark, Iowa, 1926; Charles C. McChord, Ky., 1922; Robert W. Wooley, Va., 1920; Winthrop M. Daniels, N. J., 1923; Joseph B. Eastman, Mass., 1922. Secretary, George B. McGinty, Ga., salary, \$5,000.

Federal Reserve Board.—Created by the Federal Reserve Act of Dec. 23, 1913, for the supervision of the Federal reserve system. Composed of five appointive members (full term, 10 years; salary, \$10,000 per annum) and the Secretary of the Treasury and the Comptroller of the Currency *ex officio*. The appointive members of the board, with the dates on which their terms expire, are as follows: Wm. P. G. Harding, Ala., governor (1922); Albert Strauss, N. Y., vice-governor (1928); Henry A. Moehlenpah (1920); Adolph C. Miller, Cal. (1924); Charles S. Hamlin, Mass. (1926); Secretary, W. T. Chapman, salary, \$5,000. Mr. Moehlenpah was confirmed on Sept. 23.

Federal Trade Commission.—Created by the Federal Trade Commission Act of Sept. 26, 1914. Endowed by that Act and by the Clayton Anti-trust Act of Oct. 15, 1914, with powers of investigation and publicity over corporations and certain *quasi* judicial functions in the enforcement of anti-trust laws. Composed of five appointive members (full term, seven years), at salaries of \$10,000 per annum. The members of the Board are as follows: William B. Colver, Chairman, Nelson B. Gaskill, Victor Murdock, Huston Thompson, Secretary J. P. Yoder, salary, \$5,000. Mr. Gaskill was confirmed Dec. 18, succeeding J. Franklin Fort, resigned. Mr. Thompson was reappointed in 1919 for the full term of seven years.

United States Shipping Board.—Created by the Shipping Act of Sept. 7, 1916. Charged with the administration of the Government fleet of merchant vessels and with the regulation of marine carriers. Composed of five appointive members (full term, six years) at salaries of \$7,500 per annum. The members of the Board are as follows: John Barton Payne, Chairman; Raymond B. Stevens, Vice-Chairman; John A. Donald, Thomas A. Scott, Henry M. Robinson, Commissioners.

Mr. Payne was confirmed on Aug. 5, succeeding Edward N. Hurley, resigned Aug. 1; Mr. Scott and Mr. Robinson were confirmed on the same day, succeeding, respectively, Bainbridge Colby and Charles R. Page.

United States Employees' Compensation Commission.—Created by the Employees' Compensation Act of Sept. 7, 1916, for the administration of the system of compensation for Federal employees established by the Act. Composed of three appointive members (full term, six years) at salaries of \$4,000

per annum. The members of the Commission are: Mrs. Frances C. Axtell, Chairman, John J. Keegan, Charles H. Verrill.

United States Board of Mediation and Conciliation.—Created by an Act of July 15, 1913, for the purpose of settling by mediation, conciliation and arbitration industrial disputes at the request of parties thereto. Composed of a commissioner (term, seven years; salary, \$7,500), an assistant commissioner (salary, \$5,000) and not more than two other members. The present members of the Board are: Wm. L. Chambers, Commissioner; G. W. W. Hanger, Assistant Commissioner; Martin A. Knapp, Chairman of the Board.

Civil Service Commission.—Commissioners, Martin A. Morrison, president, \$4,500; George R. Wales, \$4,500; Charged with the conduct of competitive examinations of applicants for the classified civil service.

The Commission was completely reorganized during the year, the former members, John A. McIlhenny, Charles M. Galloway, and Herman W. Craven, having resigned. (See also *Civil Service*, *infra*.)

Government Printing Office.—Public Printer, Cornelius Ford, N. J. \$5,500. Charged with the printing, press work, and binding of all Government publications of every description.

The Library of Congress.—Librarian, Herbert Putnam, Mass. \$6,500. Primarily a reference library, composed of numerous collections, presented and bought. It is the third largest collection

in the world. Under the jurisdiction of Congress.

Commission of Fine Arts.—Established 1910, to pass upon sites and plans for future buildings, monuments, etc., in the District of Columbia. No compensation but actual expenses allowed. Chairman, Charles Moore, Mich.; vice-chairman, Herbert Adams, N. Y., sculptor; James L. Greenleaf, N. Y., landscape architect; —; Charles A. Platt, N. Y., architect; John R. Pope, N. Y., architect; William M. Kendall, N. Y., architect; Secretary, Col. C. S. Ridley.

J. Alden Weir, painter, died Dec. 8. *Smithsonian Institution.*—Secretary, Charles D. Walcott, \$7,500. Established 1846, under the terms of James Smithson's will, for the "increase and diffusion of knowledge among men." The former is accomplished by promoting original scientific research, and the latter by publication and lectures. Managed by a Board of Regents. It coöperates with the Government and national scientific bodies.

Under the direction of the Smithsonian institution are the National Museum, charged with preserving and utilizing objects of art and ethnological, geological and mineralogical collections belonging to the United States; and the Bureau of American Ethnology.

Pan-American Union.—Director-General, John Barrett, Ore. \$7,500. Established for the purpose of developing closer relations of commerce and friendship between the twenty-one republics of the Western Hemisphere.

THE SIXTY-FIFTH CONGRESS

Third Session.—A complete list of the members of the Senate and House of Representatives of the Sixty-fifth Congress was given in the YEAR BOOK for 1917 (pp. 153-8) and the changes occurring in 1918 in the issue for 1918 (p. 208). The representation of parties during the final session, extending from Dec. 2, 1918, to March 4, 1919, was as follows: *Senate:* Democrats, 52; Republicans, 44; *House of Representatives:* Democrats, 217; Republicans, 212; Progressives, 2; Independents, 2; Prohibitionist, 1; Socialist, 1. The principal bills of public interest enacted during the session were the following, the dates being those of the President's approval:

S. 390. To establish the Grand Canyon National Park in the state of Arizona. Public, No. 277. Feb. 26.

S. 2552. To provide for leave of absence for homestead entrymen in one or two periods, and for longer time. Public, No. 257. Feb. 25.

S. 3220. Authorizing the Secretary of the Interior to make investigations through the Bureau of Mines of lignite coals to determine the practicability of

their utilization as a fuel and in producing commercial products. Public, No. 259. Feb. 25.

S. 4957. To establish the Lafayette National Park in the state of Maine. Public, No. 278. Feb. 26.

S. 5038. Extending the use of the special fund for vocational education provided by section 7 of the Vocation Rehabilitation Act, approved June 27, 1918, and for other purposes. Public, No. 279. Feb. 26.

S. 5236. To amend Sections 7, 10, and 11 of the Federal Reserve Act, and Section 5172, Revised Statutes of the United States. Public, No. 329. March 3.

S. 5279. To authorize the resumption of voluntary enlistment in the Regular Army, and for other purposes. Public, No. 309. Feb. 28.

H. R., 10891. To amend and reenact an act for the establishment of a probation system for the District of Columbia. Public, No. 345. March 4.

H. R. 11984. To provide for the fourteenth and subsequent decennial censuses. Public, No. 325. March 3.

H. R. 12001. To amend an act entitled "An Act to codify, revise, and amend the laws relating to the judiciary," approved March 3, 1911. Public, No. 265. Feb. 25.

H. R. 12194. To provide for the award of medals of honor, distinguished service medals, and Navy crosses, and for other purposes. Public, No. 253. Feb. 4.

IV. THE NATIONAL GOVERNMENT

H. R. 12860. Granting to members of the Army Nurse Corps (female) and Navy Nurse Corps (female), Army field clerks, field clerks, Quartermaster Corps, and civil employees of the Army pay and allowances during any period of involuntary captivity by the enemy of the United States. Public, No. 340. March 3.

H. R. 12863. To provide revenue and for other purposes. Public, No. 254. Feb. 24.

H. R. 12945. Providing for the purchase of uniforms, accoutrements, and equipment by officers of the Navy, Marine Corps, and Coast Guard and midshipmen at the Naval Academy from the Government at cost. Public, No. 248. Jan. 12.

H. R. 13026. To authorize the Secretary of the Treasury to provide hospital and sanitarium facilities for discharged sick and disabled soldiers, sailors and marines. Public, No. 326. March 3.

H. R. 13035. To amend Section 4 of Chapter V of an Act entitled "An Act making appropriations for the support of the Army for the fiscal year ending June 30, 1919," approved July 9, 1918, and to make said amendment retroactive. Public, No. 310. Feb. 28.

H. R. 13037. To amend the Fiftieth Article of War. Public, No. 311. Feb. 28.

H. R. 13261. Providing for the transportation from the District of Columbia of Governmental employees whose services no longer are required. Public, No. 246. Jan. 7.

H. R. 13273. To amend an Act entitled "An Act to authorize the establishment of a Bureau of War Risk Insurance in the Treasury Department," approved Sept. 2, 1914, and an act in amendment thereto approved Oct. 6, 1917. Public, No. 272. Feb. 25.

H. R. 13274. An act to provide relief in cases of contracts connected with the prosecution of the war, and for other purposes. Public, No. 322. March 2.

H. R. 13308. Making appropriations for the service of the Post Office Department for the fiscal year ending June 30, 1920, and for other purposes. Public, No. 299. Feb. 28.

H. R. 13353. To extend the provisions of the homestead laws touching credit for period of enlistment to the soldiers, nurses and officers of the Army and the seamen, marines, nurses, and officers of the Navy and the Marine Corps of the United States who have served or will serve with the Mexican border operations or during the war between the United States and Germany and her allies. Public, No. 273. Feb. 25.

H. R. 13366. Permitting any person who has served in the United States Army, Navy or Marine Corps in the present war to retain his uniform and personal equipment, and to wear the same under certain conditions. Public, No. 300. Feb. 28.

H. R. 13462. Making appropriations for the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes. Public, No. 323. March 2.

H. R. 13708. Providing for the relief of such populations in Europe and countries contiguous thereto, outside of Germany, German-Austria, Hungary, Bulgaria, and Turkey, as may be determined upon by the President as necessary. Public, No. 274. Feb. 25.

H. R. 14078. Making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ending June 30, 1920, and for other purposes. Public, No. 314. March 1.

H. R. 14516. Making appropriations for the Diplomatic and Consular Service for the fiscal year ending June 30, 1920. Public, No. 346. March 4.

H. R. 15140. Making appropriations to supply deficiencies in appropriations for the fiscal year ending June 30, 1919, and prior fiscal years, and for other purposes. Public, No. 275. Feb. 25.

H. R. 15219. Making appropriations for the payment of invalid and other pensions of the United States for the fiscal year ending June 30, 1920, and for other purposes. Public, No. 276. Feb. 25.

H. R. 15462. Making appropriations for the support of the Military Academy for the fiscal year ending June 30, 1920, and for other purposes. Public, No. 347. March 4.

H. R. 15495. To amend an act to provide for the appointment of a commission to standardize screw threads. Public, No. 324. March 3.

H. R. 15796. To enable the President to carry out the price guarantee made to producers of wheat of the crops of 1918 and 1919, and to protect the United States against undue enhancement of its liabilities thereunder. Public, No. 348. March 4.

H. R. 15979. Making appropriations for fortifications and other works of defense, for the armament thereof, and for the procurements of heavy ordnance for trial and service, for the fiscal year ending June 30, 1920, and for other purposes. Public, No. 327. March 3.

H. R. 16136. To amend the Liberty Bond Acts and the War Finance Corporation Act, and for other purposes. Public, No. 328. March 3.

THE SIXTY-SIXTH CONGRESS

The Senate.—The terms of 32 Senators expired on March 4, 1919. Their successors, elected on Nov. 5, 1918, hold office until March 4, 1925. The only change in the membership of the Senate during the year was caused by the death of Thomas H. Martin (Dem.) of Virginia on Nov. 12. Car-

ter Glass (Dem.), Secretary of the Treasury, was appointed for the unexpired term on Nov. 15 but did not take his seat until his successor was appointed in January, 1920. The following is a complete list of the members of the Senate in the Sixty-sixth Congress:

IV. THE NATIONAL GOVERNMENT

THE SENATE

Republicans in *Italic*, 49; Democrats in Roman, 47; whole number, 96. Salary, \$7,500 per year and mileage of 20 cents per mile each way. Those marked * reelected in 1918. Terms expire in years indicated.

<p>ALABAMA</p> <p>1921. Oscar W. Underwood</p> <p>1925. J. H. Bankhead *</p>	<p>MAINE</p> <p>1923. Frederick Hale</p> <p>1925. Bert M. Fernald</p>	<p>OHIO</p> <p>1921. Warren G. Harding</p> <p>1923. Atlee Pomerene</p>
<p>ARIZONA</p> <p>1921. Marcus A. Smith</p> <p>1923. Henry F. Ashurst</p>	<p>MARYLAND</p> <p>1921. John W. Smith</p> <p>1923. J. I. France</p>	<p>OKLAHOMA</p> <p>1921. Thomas P. Gore</p> <p>1925. Robert L. Owen *</p>
<p>ARKANSAS</p> <p>1921. Wm. F. Kirby</p> <p>1925. Jos. T. Robinson *</p>	<p>MASSACHUSETTS</p> <p>1923. Henry Cabot Lodge</p> <p>1925. David I. Walsh</p>	<p>OREGON</p> <p>1921. G. E. Chamberlain</p> <p>1925. Chas. L. McNary *</p>
<p>CALIFORNIA</p> <p>1921. James D. Phelan</p> <p>1923. Hiram W. Johnson</p>	<p>MICHIGAN</p> <p>1923. Chas. E. Townsend</p> <p>1925. Truman H. Newberry</p>	<p>PENNSYLVANIA</p> <p>1921. Boies Penrose</p> <p>1923. Philander C. Knox</p>
<p>COLORADO</p> <p>1921. Chas. S. Thomas</p> <p>1925. Lawrence C. Phipps</p>	<p>MINNESOTA</p> <p>1923. Frank S. Kellogg</p> <p>1925. Knute Nelson *</p>	<p>RHODE ISLAND</p> <p>1923. Peter G. Gerry</p> <p>1925. LeBaron B. Colt *</p>
<p>CONNECTICUT</p> <p>1921. F. B. Brandegee</p> <p>1923. George P. McLean</p>	<p>MISSISSIPPI</p> <p>1923. John S. Williams *</p> <p>1925. B. P. Harrison</p>	<p>SOUTH CAROLINA</p> <p>1921. Ellison D. Smith</p> <p>1925. Nathaniel B. Dial</p>
<p>DELAWARE</p> <p>1923. J. O. Wolcott</p> <p>1925. L. Heisler Ball</p>	<p>MISSOURI</p> <p>1921. Selden P. Spencer</p> <p>1923. James A. Reed</p>	<p>SOUTH DAKOTA</p> <p>1921. Ed. S. Johnson</p> <p>1925. Thomas Sterling *</p>
<p>FLORIDA</p> <p>1921. Duncan U. Fletcher</p> <p>1923. Park Trammell</p>	<p>MONTANA</p> <p>1923. Henry L. Myers</p> <p>1925. Thos. J. Walsh *</p>	<p>TENNESSEE</p> <p>1923. K. D. McKellar</p> <p>1925. John K. Shields *</p>
<p>GEORGIA</p> <p>1921. Hoke Smith</p> <p>1925. Wm. J. Harris</p>	<p>NEBRASKA</p> <p>1923. G. M. Hitchcock</p> <p>1925. Geo. W. Norris *</p>	<p>TEXAS</p> <p>1923. Chas. A. Culberson</p> <p>1925. Morris Sheppard *</p>
<p>IDAHO</p> <p>1921. John F. Nugent</p> <p>1925. Wm. E. Borah *</p>	<p>NEVADA</p> <p>1921. Chas. B. Henderson</p> <p>1923. Key Pittman</p>	<p>UTAH</p> <p>1921. Reed Smoot</p> <p>1923. Wm. H. King</p>
<p>ILLINOIS</p> <p>1921. L. Y. Sherman</p> <p>1925. Medill McCormick</p>	<p>NEW HAMPSHIRE</p> <p>1921. George H. Moses</p> <p>1925. Henry W. Keyes</p>	<p>VERMONT</p> <p>1921. W. P. Dillingham</p> <p>1923. Carroll S. Page</p>
<p>INDIANA</p> <p>1921. James E. Watson</p> <p>1923. Harry S. New</p>	<p>NEW JERSEY</p> <p>1923. J. S. Frelinghuysen</p> <p>1925. Walter E. Edge</p>	<p>VIRGINIA</p> <p>1923. Claude A. Swanson</p> <p>1925. Carter Glass</p>
<p>IOWA</p> <p>1921. A. B. Cummins</p> <p>1925. Wm. S. *Kenyon *</p>	<p>NEW MEXICO</p> <p>1923. A. A. Jones</p> <p>1925. Albert B. Fall *</p>	<p>WASHINGTON</p> <p>1921. Wesley L. Jones</p> <p>1923. Miles Poindexter</p>
<p>KANSAS</p> <p>1921. Charles Curtis</p> <p>1925. Arthur Capper</p>	<p>NEW YORK</p> <p>1921. Jas. W. Wadsworth</p> <p>1923. Wm. M. Calder</p>	<p>WEST VIRGINIA</p> <p>1923. Howard Sutherland</p> <p>1925. Davis Elkins</p>
<p>KENTUCKY</p> <p>1921. J. C. W. Beckham</p> <p>1925. Aug. O. Stanley</p>	<p>NORTH CAROLINA</p> <p>1921. Lee S. Overman</p> <p>1925. F. M. Simmons *</p>	<p>WISCONSIN</p> <p>1921. Irvine L. Lenroot</p> <p>1923. R. M. La Follette</p>
<p>LOUISIANA</p> <p>1921. Edward J. Gay</p> <p>1925. Jos. E. Ransdell *</p>	<p>NORTH DAKOTA</p> <p>1921. Asle J. Gronna</p> <p>1923. P. J. McCumber</p>	<p>WYOMING</p> <p>1923. John B. Kendrick</p> <p>1925. F. E. Warren *</p>

IV. THE NATIONAL GOVERNMENT

Committees of the Senate.—The following is a list of the Senate committees and their chairmen:

Additional Accommodations for the Library of Congress.—F. M. Simmons, N. C.
Agriculture and Forestry.—A. J. Gronna, N. D.
Appropriations.—F. E. Warren, Wyo.
Audit and Control of Contingent Expenses of the Senate.—W. M. Calder, N. Y.
Banking and Currency.—G. P. McLean, Conn.
Canadian Relations.—Frederick Hale, Me.
The Census.—Howard Sutherland, W. Va.
Civil Service and Retrenchment.—Thomas Sterling, S. D.
Claims.—Selden P. Spencer, Mo.
Coast and Insular Survey.—Walter E. Edge, N. J.
Coast Defenses.—J. S. Frelinghuysen, N. J.
Commerce.—W. L. Jones, Wash.
Conservation of National Resources.—E. D. Smith, S. C.
Corporations Organized in the District of Columbia.—Atlee Pomerene, Ohio.
Cuban Relations.—H. W. Johnson, Cal.
Disposition of Useless Papers in the Executive Departments.—T. J. Walsh, Mont.
District of Columbia.—L. Y. Sherman, Ill.
Education and Labor.—W. S. Kenyon, Ia.
Engrossed Bills.—L. S. Overman, N. C.
Enrolled Bills.—L. H. Ball, Del.
Examine the Several Branches of the Civil Service.—J. W. Smith, Md.
Expenditures in the Department of Agriculture.—Arther Capper, Kan.
Expenditures in the Department of Commerce.—David Elkins, W. Va.
Expenditures in the Interior Department.—J. H. Bankhead, Ala.
Expenditures in the Department of Justice.—Thomas P. Gore, Okla.
Expenditures in the Department of Labor.—Medill McCormick, Ill.
Expenditures in the Navy Department.—C. A. Swanson, Va.
Expenditures in the Post Office Department.—Henry W. Keyes, N. H.
Expenditures in the Department of State.—L. C. Phipps, Col.
Expenditures in the Treasury Department.—Hoke Smith, Ga.
Expenditures in the War Department.—G. E. Chamberlain, Ore.
Finance.—Boies Penrose, Pa.
Fisheries.—T. H. Newberry, Mich.
Five Civilized Tribes of Indians.—R. L. Owen, Okla.
Foreign Relations.—H. C. Lodge, Mass.
Forest Reservations and the Protection of Game.—G. M. Hitchcock, Neb.
Geological Survey.—M. A. Smith, Ariz.
Immigration.—L. B. Colt, R. I.
Indian Affairs.—Charles Curtis, Kan.
Indian Depredations.—H. L. Myers, Mont.
Industrial Expositions.—Key Pittman, Nev.
Interoceanic Canals.—W. E. Borah, Idaho.
Interstate Commerce.—A. B. Cummins, Ia.
Investigate Trespassers upon Indian Lands.—H. F. Ashurst, Ariz.
Irrigation and Reclamation of Arid Lands.—C. L. McNary, Ore.

Judiciary.—Knut Nelson, Minn.
Library.—F. B. Brandegee, Conn.
Manufactures.—R. M. La Follette, Wis.
Military Affairs.—J. W. Wadsworth, Jr., N. Y.
Mines and Mining.—Miles Poindexter, Wash.
Mississippi River and its Tributaries.—J. E. Ransdell, La.
National Banks.—F. B. Kellogg, Minn.
Naval Affairs.—C. S. Page, Vt.
Pacific Islands and Porto Rico.—Albert B. Fall, N. M.
Pacific Railroads.—C. S. Thomas, Col.
Patents.—G. W. Norris, Neb.
Pensions.—P. J. McCumber, N. D.
Philippines.—Warren G. Harding, Ohio.
Post Offices and Post Roads.—C. E. Townsend, Mich.
Printing.—George H. Moses, N. H.
Private Land Claims.—C. A. Culberson, Tex.
Privileges and Elections.—W. P. Dillingham, Vt.
Public Buildings and Grounds.—B. M. Fernald, Me.
Public Health and National Quarantine.—J. I. France, Md.
Public Lands.—Reed Smoot, Utah.
Railroads.—I. L. Lenroot, Wis.
Revolutionary Claims.—Morris Sheppard, Tex.
Rules.—P. C. Knox, Pa.
Standards, Weights, and Measures.—J. A. Reed, Mo.
Territories.—H. S. New, Ind.
Transportation Routes to the Seaboard.—D. U. Fletcher, Fla.
Transportation and Sale of Meat Products.—John K. Shields, Miss.
University of the United States.—J. S. Williams, Miss.
Woman Suffrage.—J. E. Watson, Ind.

House of Representatives.—The House of Representatives of the Sixty-sixth Congress was elected on Nov. 5, 1918. The changes during the year were as follows: 7th Georgia, Lilius B. Rainey (Dem.) succeeded John L. Burnett (Dem.), died May 13; 8th Kentucky, King Swope (Rep.) succeeded Harvey Helm (Dem.), died March 3; 1st Louisiana, James O'Connor (Dem.) succeeded Albert Estopinal (Dem.), died April 28; 10th Massachusetts, Peter F. Tague (Dem.) replaced John F. Fitzgerald (Dem.), unseated Oct. 23; 4th Minnesota, Oscar E. Keller (Ind. Rep.) succeeded C. C. Van Dyke (Dem.), died May 20; 9th North Carolina, Clyde R. Hoey (Dem.) succeeded E. Y. Webb (Dem.), appointed U. S. district judge; 5th Oklahoma, John W. Harreld (Rep.) succeeded J. B. Thompson (Dem.), died Sept. 18; 22d Pennsylvania, John H. Wilson (Dem.) succeeded Edwin E. Robbins (Rep.), died Jan. 25; 6th South Carolina, Philip H. Stoll

IV. THE NATIONAL GOVERNMENT

(Dem.) succeeded J. W. Ragsdale (Dem.), died July 23; 7th South Carolina, Edward C. Mann (Dem.) succeeded A. F. Lever (Dem.), appointed member of Farm Loan Board; 12th Texas, Fritz G. Lanham (Dem.) succeeded James C. Wilson (Dem.), appointed U. S. district judge; 6th Virginia, James P. Woods (Dem.) succeeded Carter Glass (Dem.), appointed Secretary of the Treasury; 8th Virginia, R. Walton Moore (Dem.) replaced C. C. Carlin (Dem.), declined

to qualify. Vacancies occur as follows: 3d Missouri, Joshua W. Alexander (Dem.) appointed Secretary of Commerce; 14th New York, F. H. La Guardia (Rep.) elected president of New York Board of Aldermen; 3d Pennsylvania, J. H. Moore (Rep.) elected mayor of Philadelphia; 5th Wisconsin, Victor Berger (Socialist) unseated Nov. 12. The following is a complete list of the members of the House of Representatives in the Sixty-sixth Congress:

HOUSE OF REPRESENTATIVES

Republicans in *Italic*, 237; Democrats in Roman, 190; Independents in CAPS, 1; Independent Republicans in *ITALIC* CAPS, 2; Prohibitionist in SMALL CAPS,

1; Vacancies, 4; whole number 435. Those marked * served in the 65th Congress. Salary \$7,500 per annum and mileage of 20 cents per mile.

ALABAMA

1. John McDuffie
2. S. H. Dent *
3. H. B. Steagall *
4. F. L. Blackmon *
5. J. T. Heflin *
6. W. B. Oliver *
7. Lilius B. Rainey
8. E. B. Almon *
9. George Huddleston *
10. W. B. Bankhead *

ARIZONA

AT LARGE—Carl Hayden *

ARKANSAS

1. T. H. Caraway *
2. W. A. Oldfield *
3. J. N. Tillman *
4. O. T. Wingo *
5. H. M. Jacoway *
6. S. M. Taylor *
7. W. S. Goodwin *

CALIFORNIA

1. Clarence F. Lea *
2. J. E. Raker *
3. C. F. Curry *
4. Julius Kahn *
5. J. I. Nolan *
6. J. A. Elston *
7. H. E. Barbour
8. H. S. Hersman
9. C. H. RANDALL *
10. Henry Z. Osborne *
11. William Kettner *

COLORADO

1. Wm. N. Vaile
2. Chas. B. Timmerlake *
3. Guy W. Hardy
4. Edward T. Taylor *

CONNECTICUT

1. Augustine Lonergan *
2. R. P. Freeman *
3. J. Q. Tilton *
4. Schuyler Merritt *
5. J. P. Glynn *

DELAWARE

AT LARGE—C. R. Layton

FLORIDA

1. Herbert J. Drane *
2. Frank Clark *
3. J. H. Smithwick
4. W. J. Sears *

GEORGIA

1. J. W. Overstreet *
2. Frank Park *
3. C. R. Crisp *
4. W. C. Wright *
5. Wm. D. Upshaw
6. James W. Wise *
7. Gordon Lee *
8. C. H. Brand *
9. Thomas M. Bell *
10. Carl Vinson *
11. W. C. Lankford
12. W. W. Larsen *

IDAHO

1. Burton L. French *
2. A. T. Smith *

ILLINOIS

1. M. B. Madden *
2. J. R. Mann *
3. W. W. Wilson *
4. John W. Rainey *
5. A. J. Sabath *
6. James McAndrews *
7. Niels Juul *
8. Thomas Gallagher *
9. F. A. Britten *
10. C. A. Chindblom
11. I. C. Copley *
12. C. E. Fuller *
13. J. C. McKenzie *
14. Wm. J. Graham *
15. E. J. King *
16. Clifford Ireland *
17. Frank L. Smith
18. J. G. Cannon *
19. W. B. McKinley *
20. H. T. Rainey *
21. L. E. Wheeler *
22. W. A. Rodenberg *
23. E. B. Brooks
24. T. S. Williams *
25. E. E. Denison *

AT LARGE—Wm. E. Mason, *
Richard Yates

INDIANA

1. O. R. Luhring
2. Oscar E. Bland *
3. J. W. Dunbar
4. J. S. Benham
5. Everett Sanders *
6. R. N. Elliott *
7. Merrill Moores *
8. Albert H. Vestal *
9. F. S. Purnell *
10. W. R. Wood *
11. Milton Kraus *
12. L. W. Fairfield *
13. A. J. Hickey

IOWA

1. C. A. Kennedy *
2. H. E. Hull *
3. B. E. Sweet *
4. G. N. Haugen *
5. J. W. Good *
6. C. W. Ramseyer *
7. C. C. Dowell *
8. H. M. Townner *
9. W. R. Green *
10. L. J. Dickinson
11. W. D. Boies

KANSAS

1. D. R. Anthony, Jr. *
2. Edward C. Little *
3. P. P. Campbell *
4. Homer Hoch
5. James G. Strong
6. Hayes B. White
7. J. N. Tinchner
8. W. A. Ayres *

KENTUCKY

1. A. W. Barkley *
2. D. H. Kincheloe *
3. R. Y. Thomas, Jr. *
4. Ben Johnson *
5. Chas. F. Ogden
6. A. B. Rouse *
7. J. C. Cantrill *
8. King Swope
9. W. J. Fields *
10. J. W. Langley *
11. J. M. Robison

IV. THE NATIONAL GOVERNMENT

LOUISIANA

1. James O'Connor
2. H. G. Dupré *
3. W. P. Martin *
4. J. T. Watkins *
5. Riley J. Wilson *
6. J. Y. Sanders *
7. L. Lazaro *
8. James B. Aswell *

MAINE

1. Louis B. Goodall *
2. Wallace H. White *
3. John A. Peters *
4. Ira G. Hersey *

MARYLAND

1. Wm. N. Andrews
2. C. D. Benson
3. C. P. Coady *
4. J. C. Linthicum *
5. S. E. Mudd *
6. F. N. Zihlman *

MASSACHUSETTS

1. A. T. Treadway *
2. F. H. Gilett *
3. C. D. Paige *
4. S. E. Winslow *
5. J. J. Rogers *
6. W. W. Lufkin *
7. M. F. Phelan *
8. F. W. Dallinger *
9. Alvan T. Fuller *
10. Peter F. Tague
11. G. H. Tinkham *
12. J. A. Gallivan *
13. Robert Luce
14. Richard Olney, 2d *
15. W. S. Greene *
16. Joseph Walsh *

MICHIGAN

1. F. E. Doremus *
2. E. C. Michener
3. J. M. C. Smith *
4. E. L. Hamilton *
5. C. E. Mapes *
6. P. H. Kelley *
7. L. C. Cramton *
8. J. W. Foraney *
9. J. C. McLaughlin *
10. G. A. Currie *
11. F. D. Scott *
12. W. F. James *
13. C. A. Nichols *

MINNESOTA

1. Sydney Anderson *
2. F. F. Ellsworth *
3. C. R. Davis *
4. OSCAR E. KELLER
5. W. H. Newton
6. Harold Knutson *
7. A. J. Volstead *
8. W. L. CARSS
9. Halvor Steenerson *
10. Thomas D. Schall *

MISSISSIPPI

1. E. S. Candler *
2. H. D. Stephens *
3. B. G. Humphreys *
4. T. U. Sisson *
5. W. W. Venable *
6. P. B. Johnson
7. P. E. Quin *
8. J. W. Collier *

MISSOURI

1. Milton A. Romjue *
2. W. W. Rucker *
3. _____
4. C. F. Booher *
5. W. P. Bland
6. C. C. Dickinson *
7. Sam C. Major
8. Wm. L. Nelson
9. Champ Clark *
10. Cleveland Newton
11. W. L. Igoe *
12. L. C. Dyer *
13. M. E. Rhodes
14. E. D. Hays
15. I. V. McPherson
16. T. L. Rubey *

NEBRASKA

1. J. M. Evans *
2. C. W. Riddick

MONTANA

1. C. F. Reavis *
2. A. W. Jefferis
3. Robt. E. Evans
4. M. O. McLaughlin
5. Wm. E. Andrews
6. M. P. Kinkaid *

NEVADA

AT LARGE—Chas. R. Evans

NEW HAMPSHIRE

1. S. E. Burroughs *
2. E. H. Watson *

NEW JERSEY

1. W. J. Browning *
2. Isaac Bacharach *
3. T. J. Scully *
4. E. C. Hutchinson *
5. E. R. Ackerman
6. John R. Ramsey *
7. A. H. Radcliffe
8. C. A. McGlennon
9. D. F. Minahan
10. Fred R. Lehlbach *
11. J. J. Eagan *
12. J. A. Hamill *

NEW MEXICO

AT LARGE—B. C. Hernandez

NEW YORK

1. Fred C. Hicks *
2. C. P. Caldwell *
3. John McCrate
4. Thos. H. Cullen
5. J. B. Johnston
6. F. W. Rowe *
7. Jas. P. Maher *
8. Wm. E. Cleary *
9. D. J. O'Connell
10. R. L. Haskell *
11. D. J. Riordan *
12. H. M. Goldfogle
13. C. D. Sullivan *
14. _____
15. P. J. Dooling *
16. Thos. F. Smith *
17. H. C. Pell
18. John F. Carew *
19. Joseph Rowan
20. Isaac Siegel *
21. J. F. Donovan *
22. A. J. Griffin *
23. R. F. McKiniry

24. Jas. V. Ganly
25. J. W. Husted *
26. Edmund Platt *
27. C. B. Ward *
28. R. B. Sanford *
29. J. S. Parker *
30. Frank Crowther
31. B. H. Snell *
32. L. W. Mott *
33. H. P. Snyder *
34. Wm. H. Hill
35. W. W. Magee *
36. N. J. Gould *
37. A. B. Houghton
38. T. B. Dunn *
39. A. D. Sanders *
40. S. W. Dempsey *
41. Clarence McGregor
42. James M. Mead
43. Daniel A. Reed

NORTH CAROLINA

1. J. H. Small *
2. Claude Kitchin *
3. S. M. Brinson
4. E. W. Pou *
5. C. M. Stedman *
6. H. L. Godwin *
7. L. D. Robinson *
8. R. L. Doughton *
9. Clyde R. Hoey
10. Zebulon Weaver *

NORTH DAKOTA

1. J. M. Baer *
2. G. M. Young *
3. J. H. Sinclair

OHIO

1. Nicholas Longworth *
2. A. E. B. Stephens
3. Warren Gard *
4. B. F. Welty *
5. C. J. Thompson
6. C. C. Kearns *
7. S. D. Fess *
8. R. Clint Cole
9. I. R. Sherwood *
10. I. M. Foster
11. E. D. Ricketts
12. Clement Brumbaugh *
13. J. T. Begg
14. M. L. Davey
15. C. Ellis Moore
16. R. C. McCulloch *
17. W. A. Ashbrook *
18. Frank Murphy
19. J. G. Cooper *
20. Chas. A. Mooney
21. John J. Babka
22. H. I. Emerson *

OKLAHOMA

1. E. B. Howard
2. W. W. Hastings *
3. C. D. Carter *
4. T. D. McKeown *
5. John W. Harveld
6. Scott Ferris *
7. J. V. McClintic *
8. D. T. Morgan *

OREGON

1. W. C. Hawley *
2. N. J. Sinnott *
3. C. N. McArthur *

IV. THE NATIONAL GOVERNMENT

PENNSYLVANIA	
1. W. S. Vare *	
2. G. S. Graham *	
3.	
4. G. W. Edmonds *	
5. P. E. Costello *	
6. G. P. Darrow *	
7. T. S. Butler *	
8. H. W. Watson *	
9. W. W. Grist *	
10. Patrick McLane	
11. John J. Casey	
12. John Reber	
13. A. G. Dewalt *	
14. L. T. McFadden *	
15. E. R. Kiess *	
16. J. V. Leshner *	
17. B. K. Focht *	
18. A. S. Kreider *	
19. John M. Rose *	
20. E. S. Brooks	
21. Evan J. Jones	
22. John H. Wilson	
23. S. A. Kendall	
24. H. W. Temple *	
25. M. M. Shreve	
26. H. J. Steele *	
27. Nathan L. Strong *	
28. W. J. Hulings	
29. S. G. Porter *	
30. M. CLYDE KELLY *	
31. J. M. Morin *	
32. Guy E. Campbell *	
AT LARGE—T. S. Crago *	
M. M. Garland, *	
Wm. J. Burke,	
A. H. Walters	

RHODE ISLAND	
1. Clark Burdick	
2. W. R. Stiness *	
3. Ambrose Kennedy *	

SOUTH CAROLINA	
1. R. S. Whaley *	
2. J. F. Byrnes *	
3. F. H. Dominick *	

4. S. J. Nicholls *	
5. W. F. Stevenson *	
6. Philip H. Stoll	
7. Edward C. Mann	

SOUTH DAKOTA	
1. C. A. Christopherson	
2. R. C. Johnson *	
3. H. L. Gandy *	

TENNESSEE	
1. S. R. Sells *	
2. J. Will Taylor	
3. J. A. Moon *	
4. Cordell Hull *	
5. E. L. Davis	
6. J. W. Byrns *	
7. L. P. Padgett *	
8. T. W. Sims *	
9. F. J. Garrett *	
10. Hubert F. Fisher *	

TEXAS	
1. Eugene Black *	
2. John C. Box	
3. James Young *	
4. Sam Rayburn *	
5. H. W. Sumners *	
6. Rufus Hardy *	
7. Clay S. Briggs	
8. J. H. Eagle *	
9. J. J. Mansfield *	
10. J. P. Buchanan *	
11. Thomas Connally *	
12. Fritz G. Lanham	
13. L. W. Parrish	
14. Carlos Bee	
15. J. N. Garner *	
16. Claude B. Hudspeth	
17. Thos. L. Blanton	
18. Marvin Jones *	

UTAH	
1. Milton H. Welling *	
2. J. H. Mays *	

VERMONT	
1. F. L. Greene *	
2. P. H. Dale *	

VIRGINIA	
1. S. O. Bland	
2. E. E. Holland *	
3. A. J. Montague *	
4. W. A. Watson *	
5. E. W. Saunders *	
6. James P. Woods	
7. T. W. Harrison *	
8. R. Walton Moore	
9. C. B. Slemp *	
10. H. D. Flood *	

WASHINGTON	
1. John F. Miller *	
2. L. H. Hadley *	
3. Albert Johnson *	
4. J. W. Sumners	
5. J. S. Webster	

WEST VIRGINIA	
1. M. M. Neely *	
2. George M. Bowers *	
3. Stuart F. Reed *	
4. H. C. Woodyard *	
5. Wells Goodykooontz	
6. L. S. Echols	

WISCONSIN	
1. C. E. Randall *	
2. Edward Voigt *	
3. J. G. Monahan	
4. John C. Kleczka	
5.	
6. Florian Lampert	
7. J. J. Esch *	
8. E. E. Browne *	
9. David G. Classon *	
10. J. A. Frear *	
11. A. P. Nelson	

WYOMING	
AT LARGE—F. W. Mondell *	

Committees of the House.—The following is a list of the House Committees and their chairmen:

Accounts.—Clifford Ireland, Ill.
Agriculture.—G. N. Haugen, Iowa.
Alcohol Liquor Traffic.—A. T. Smith, Idaho.
Appropriations.—J. W. Good, Iowa.
Banking and Currency.—Edmund Platt, N. Y.
Budget (Select Committees on the).—J. W. Good, Iowa.
Census.—C. A. Nichols, Mich.
Claims.—G. W. Edmonds, Pa.
Coinage, Weights, and Measures.—A. H. Vestal, Ind.
District of Columbia.—Carl E. Mapes, Mich.
Education.—S. D. Fess, Ohio.
Election of President, Vice-President, and Representatives in Congress.—Florian Lampert, Wis.
Elections No. 1.—F. W. Dallinger, Mass.
Elections No. 2.—L. B. Goodall, Me.
Elections No. 3.—C. C. Dowell, Iowa.
Enrolled Bills.—John R. Ramsey, N. J.
Expenditures in the Department of Agriculture.—J. M. Baer, N. D.

Expenditures in the Department of Commerce.—T. S. Williams, Ill.
Expenditures in the Interior Department.—A. S. Kreider, Pa.
Expenditures in the Department of Justice.—W. H. White, Jr., Me.
Expenditures in the Department of Labor.—A. H. Walters, Pa.
Expenditures in the Navy Department.—R. L. Haskell, N. Y.
Expenditures in the Post Office Department.—F. N. Zihlman, Md.
Expenditures in the State Department.—R. N. Elliott, Ind.
Expenditures in the Treasury Department.—P. H. Dale, Vt.
Expenditures in the War Department.—W. J. Graham, Ill.
Expenditures on Public Buildings.—I. G. Hersey, Me.
Flood Control.—W. A. Rodenberg, Ill.
Foreign Affairs.—S. G. Porter, Pa.
Immigration and Naturalization.—Albert Johnson, Wash.
Indian Affairs.—H. P. Snyder, N. Y.
Industrial Arts and Expositions.—O. E. Bland, Ind.
Insular Affairs.—H. M. Towner, Iowa.
Interstate and Foreign Commerce.—John J. Esch, Wis.

Invalid Pensions.—C. E. Fuller, Ill.
Irrigation of Arid Lands.—M. P. Kin-kaid, Neb.
Judiciary.—A. J. Volstead, Minn.
Labor.—J. M. C. Smith, Mich.
Library.—N. J. Gould, N. Y.
Merchant Marine and Fisheries.—W. S. Greene, Mass.
Mileage.—John A. Elston, Cal.
Military Affairs.—Julius Kahn, Cal.
Mines and Mining.—M. H. Garland, Pa.
Naval Affairs.—Thomas S. Butler, Pa.
Patents.—John I. Nolan, Cal.
Pensions.—Sam R. Sells, Tenn.
Post Office and Post Roads.—Halvor Steenerson, Minn.
Printing.—E. R. Kiess, Pa.
Public Buildings and Grounds.—J. W. Langley, Ky.
Public Lands.—N. J. Sinnott, Ore.
Railways and Canals.—L. E. Wheeler, Ill.
Reform in the Civil Service.—F. R. Lehl-bach, N. J.
Revision of the Laws.—E. C. Little, Kas.
Rivers and Harbors.—C. A. Kennedy, Ia.
Roads.—T. B. Dunn, N. Y.
Rules.—P. P. Campbell, Kan.
Territories.—C. F. Curry, Cal.
War Claims.—B. K. Focht, Pa.
War Department (Select Committee on Expenditures in).—W. J. Graham, Ill.
Water Power (Select).—John J. Esch, Wis.
Ways and Means.—J. W. Fordney, Mich.
Woman Suffrage.—J. R. Mann, Ill.

First Session.—The first session to the Sixty-sixth Congress opened on May 19 and ended on Nov. 19. The principal bills of public interest enacted were the following, the dates being those of the President's approval:

S. 120. To repeal chapter 154 of the act of the second session of the Sixty-fifth Congress, being the joint resolution entitled "Joint resolution to authorize the President in time of war to supervise or take possession and assume control of any telegraph, telephone, marine cable or radio system or systems or any part thereof, and to operate the same in such manner as may be needful or desirable for the duration of the war and to provide just compensation therefor, approved July 16, 1918. Public, No. 9. July 11.

S. 409. To consent to the proposed compact or agreement between the states of New Jersey and New York for the construction, operation, repair and maintenance of a tunnel or tunnels under the Hudson River between the cities of New Jersey and New York. Public, No. 10. July 11.

S. 633. Extending the provision for regulation of steam vessels to vessels owned and operated by the U. S. Shipping Board, and for other purposes. Presented Oct. 14. Law without approval. Public, No. 65.

S. 794. Granting lands for school purposes in Government town sites on reclamation projects. Presented Oct. 20. Law without approval. Public, No. 72.

S. 1213. To amend an act entitled "An act to provide for vocational rehabilita-

tion and return to civil employment of disabled persons discharged from the military or naval forces of the United States, and for other purposes," approved June 27, 1918. Public No. 11. July 11.

S. 2622. To provide necessary commissioned personnel for the Army until June 30, 1920. Public, No. 49. Sept. 17.

H. R. 2329. Making appropriations to supply urgent deficiencies in appropriations for the Bureau of War Risk Insurance and for the payment of pensions for the fiscal year ending June 30, 1919. Public, No. 1. June 5.

H. R. 3143. To provide for further educational facilities by requiring the War Department to loan certain machine tools and scientific instruments not in use for Government purposes to trade and technical schools and universities, and for other purposes. Public, No. 91. Nov. 19.

H. R. 3478. Making appropriations to supply deficiencies in appropriations for the fiscal year ending June 30, 1919, and prior fiscal years, and for other purposes. Public, No. 5. July 11.

H. R. 4226. Making appropriations to provide for the expenses of the government of the District of Columbia for the fiscal year ending June 30, 1920, and for other purposes. Public, No. 6. July 11.

H. R. 5227. Making appropriations for the support of the Army for the fiscal year ending June 30, 1920. Public, No. 7. July 11.

H. R. 5312. To supply a deficiency in the appropriations for carrying out the act entitled, "An Act to provide for the operation of transportation systems while under Federal control, for the just compensation of their owners, and for other purposes," approved March 21, 1918. Public, No. 4. June 30.

H. R. 5608. Making appropriations for the Naval service for the fiscal year ending June 30, 1920, and for other purposes. Public, No. 8. July 11.

H. R. 6810. To prohibit intoxicating beverages and to regulate the manufacture, production, use, and sale, of high-proof spirits for other than beverage purposes, and to insure an ample supply of alcohol and promote its use in scientific research and in the development of fuel, dye, and other lawful industries. Passed over President's veto, Oct. 28. Public, No. 66.

H. R. 6951. Authorizing the return to the sender or the forwarding of undelivered, second-, third-, and fourth-class mail matter. Public, No. 92. Nov. 19.

H. R. 7343. Making appropriations for sundry civil expenses of the Government for the fiscal year ending June 30, 1920, and for other purposes. Public No. 21. July 19.

H. R. 7413. Making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1920. Public, No. 22. July 25.

H. R. 7594. Relating to the creation of the office of general of the Armies of the United States. Public, No. 45. Aug. 31.

H. R. 8624. To amend an act entitled "An Act to provide further for the national security and defense by encouraging the production, conserving the supply, and

IV. THE NATIONAL GOVERNMENT

controlling the distribution of food products and fuel," approved Aug. 10, 1917. Public, No. 63. Oct. 22.

H. R. 9203. To punish the transportation of stolen motor vehicles in interstate or foreign commerce. Presented Oct. 17. Law without approval. Public, No. 70.

H. R. 9205. Making appropriations to supply deficiencies in appropriations for the fiscal year ending June 30, 1920, and prior fiscal years, and for other purposes. Nov. 4.

H. R. 9782. To regulate further the entry of aliens into the United States. Presented Oct. 29. Law without approval. Public No. 79.

H. J. Res. 150. To suspend the requirements of annual assessment work on mining claims during the year 1919. Public Res. No. 10. Aug. 15.

H. J. Res. 249. To continue the control of imports of dyes and coal-tar products. Public Res. No. 21. Nov. 19.

Second Session.—The second session of the Sixty-sixth Congress opened on Dec. 1 and recessed on Dec. 20 to Jan. 5, 1920. The only enactment of public interest was:

S. 2497. To provide for the payment of six months' pay to the widow, children, or other designated dependent relatives of any officer or enlisted man of the Regular Army whose death results from wounds or disease, not the result of his own misconduct. Public, No. 99. Dec. 17.

Appropriations.—The regular appropriation acts enacted by the Sixty-fifth and Sixty-sixth Congresses for the fiscal year 1920 were as follows:

Agriculture	\$ 33,899,761.00
Army	772,324,877.50
Diplomatic and Consular	9,843,661.67
District of Columbia...	15,364,421.00
Fortification	11,214,291.00
Indian	11,131,397.03
Legislative, etc.	97,963,831.77
Military Academy.....	2,277,932.20
Naval	616,096,838.88
Pension	215,030,000.00
Post Office.....	609,466,149.00
River and harbor.....	33,378,364.00
Sundry civil	607,160,207.95

Total, regular acts...\$3,035,151,733.00

THE FEDERAL JUDICIARY

The United States Supreme Court.—Supreme Court justices are appointed for life and receive salaries of \$14,500 per year, except the Chief Justice, whose salary is \$15,000. The justices of the Supreme Court are:

	Born	App.
Edward D. White, La., Chief Justice	1845	1894
Joseph McKenna, Cal.	1843	1898
Oliver W. Holmes, Mass.	1841	1902
William R. Day, Ohio.....	1849	1903
Willis Van Devanter, Wyo....	1859	1910
Mahlon Pitney, N. J.	1858	1912
James C. McReynolds, Tenn.	1862	1914
Louis D. Brandeis, Mass.	1856	1916
John H. Clark, Ohio.....	1957	1916
Clerk, James D. Maher, D. C....		\$6,000
Marshal, Frank Key Green.....		4,500
Reporter, Ernest Knaebel, Col....		4,500

United States Circuit Courts of Appeals.—The Act of March 3, 1911 (A. Y. B., 1912, p. 231), provides that there shall be in each judicial circuit a Circuit Court of Appeals, which shall consist of three judges, two of whom shall constitute a quorum; the Chief Justice and the associate justices of the Supreme Court assigned to each circuit, and the several district judges within each circuit, shall be competent to sit therein. in addition to the judges of the circuit courts abolished in 1912. There were 30 circuit judges on Dec. 31, 1919, with four vacancies. The salary of circuit judges is \$7,000.

United States District Courts.—The judicial districts into which the United States is divided were enumerated in the YEAR BOOK for 1913 (p. 175). On Dec. 31, 1919, there were 96 district judges in the United States, exclusive of the non-contiguous territories (salary \$6,000). There are four U. S. district judges in Alaska, two in Hawaii, one in Porto Rico, and one in the Canal Zone.

Court of Claims.—Claims against the United States are adjudicated by a Court of Claims consisting of five judges appointed for life or during good behavior, the Chief Justice receiving a salary of \$6,500 and the associated judges of \$6,000. The Court is now constituted as follows:

Chief Justice.—Edward K. Campbell, appointed 1913.
Judges.—Fenton W. Booth, appointed 1897.
 Samuel S. Barney, appointed 1906.
 George E. Downey, appointed 1915.
 Samuel J. Graham, appointed 1919.

Court of Customs Appeals.—The Court of Customs Appeals, created by the tariff act of 1909, is constituted as follows:

Presiding Judge.—Robert M. Montgomery, Michigan.
Associate Judges.—James F. Smith, California; Orion M. Barber, Vermont; Marion DeVries, California; George E. Martin, Ohio.

IV. THE NATIONAL GOVERNMENT

THE DIPLOMATIC SERVICE

ACCREDITED BY UNITED STATES			ACCREDITED TO UNITED STATES		
			AMBASSADORS		
Country	Appointed		Appointed		Commissioned
<i>Argentina</i>	Frederic Jesup Stimson	1914	Dr. Thomas A. LeBreton		1919
<i>Austria</i>	_____	_____	_____		_____
<i>Belgium</i>	Brand Whitlock	1913	Baron E. de C. de Marchienne		1917
<i>Brazil</i>	Edwin V. Morgan	1912	Domício da Gama		1911
<i>Chile</i>	Joseph H. Shea	1916	Señor Don Beltran Mathieu		1919
<i>France</i>	Hugh C. Wallace	1919	J. J. Jusserand		1903
<i>Germany</i>	_____	_____	_____		_____
<i>Great Britain</i> . .	John W. Davis	1918	Viscount Grey		1919
<i>Italy</i>	Thomas N. Page	1913	_____		_____
<i>Japan</i>	Roland S. Morris	1917	K. Shidehara		1919
<i>Mexico</i>	_____	_____	Señor Ing. Ygnacio Bontillas		1917
<i>Russia</i>	_____	_____	Boris Bakhméteff		1911
<i>Spain</i>	Joseph E. Willard	1913	Señor Don Juan Riaño y Gay- angos		1910
<i>Turkey</i>	_____	_____	_____		_____

MINISTERS PLENIPOTENTIARY

<i>Bolivia</i>	S. Abbott Maginnis	1919	Señor Don Ignacio Calderon		1904
<i>Bulgaria</i>	_____	_____	Stephan Panaretoff		1915
<i>China</i>	_____	_____	V. K. Wellington Koo		1915
<i>Colombia</i>	Hoffman Philip	1917	Dr. Carlos Adolfo Urueta		1917
<i>Costa Rica</i>	_____	_____	_____		_____
<i>Cuba</i>	William E. Gonzales	1913	Dr. Carlos Manuel de Céspedes		1914
<i>Czecho-</i> <i>Slovakia</i>	Richard Crane	1919	_____		_____
<i>Denmark</i>	_____	_____	Constantin Brun		1917
<i>Dominican</i> <i>Republic</i>	William W. Russell	1915	Señor Dr. Louis Galván		1917
<i>Ecuador</i>	Charles S. Hartman	1913	Señor Dr. Don. R. H. Elizalde		1917
<i>Finland</i>	_____	_____	A. H. Saastamoinen		1919
<i>Greece</i>	Garrett Droppers	1914	Georges Roussos		1917
<i>Guatemala</i>	Benton McMillin	1919	Señor Don Joaquín Méndes		1912
<i>Haiti</i>	Arthur Bailly-Blanchard	1914	Charles Moravia		1919
<i>Honduras</i>	T. Sambola Jones	1918	Señor Don. J. A. L. Gutierrez		1918
<i>Montenegro</i>	Garrett Droppers	1914	Antoine Gvosdenovitch		1918
<i>Netherlands</i>	_____	_____	J. Theodore Cremer		1918
<i>Nicaragua</i>	Benjamin L. Jefferson	1913	Señor Don Diego M. Chamorro		1918
<i>Norway</i>	Albert J. Schmedemann	1913	H. H. Bryn		1910
<i>Panama</i>	William J. Price	1913	Señor Dr. Don Belisario Porras		1917
<i>Paraguay</i>	Daniel F. Mooney	1914	Dr. Manuel Gondra		1918
<i>Persia</i>	John L. Caldwell	1914	Mirza Abdul Ali Khan		1919
<i>Peru</i>	_____	_____	_____		_____
<i>Poland</i>	Hugh S. Gibson	1919	_____		_____
<i>Portugal</i>	Thomas H. Birch	1913	Viscount de Alte		1902
<i>Rumania</i>	Charles J. Vopicka	1913	_____		_____
<i>Salvador</i>	Boaz W. Long	1914	Señor Dr. Don Salvador Sol M.		1919
<i>Serbs, Croats,</i> <i>etc.</i>	H. Percival Dodge	1919	Slavko Y. Grouitch		1919
<i>Siam</i>	_____	_____	Phya Prabba Karavongse		1914
<i>Sweden</i>	Ira Nelson Morris	1914	W. A. F. Ekengren		1911
<i>Switzerland</i>	Pleasant A. Stovall	1913	Dr. Hans Sulzer		1917
<i>Uruguay</i>	Robert E. Jeffery	1915	Dr. Jacobs Varela		1919
<i>Venezuela</i>	_____	1913	Señor Don Santos A. Dominici		1914

THE CONSULAR SERVICE

By Act of Congress of Feb. 5, 1915, it is provided that consuls-general and consuls will hereafter be appointed with the advice and consent of the Senate to grades and classes of the Service and not to particular posts. They will receive commissions as officers of specific classes and may be assigned and transferred by the President to posts of duty as the interest of the Service may require.

Consuls-general and consuls are graded, classified and compensated as follows:

Consuls-General	Consuls
Class one, \$12,000	Class one, \$8,000
Class two, 8,000	Class two, 6,000
Class three, 6,000	Class three, 5,000
Class four, 5,500	Class four, 4,500
Class five, 4,500	Class five, 4,000
	Class six, 3,500
	Class seven, 3,000
	Class eight, 2,500
	Class nine, 2,000

There are in all 43 consuls-general, 294 consuls, and 50 vice-consuls de carrière stationed in the principal cities of the various countries of the world. In addition there are 109 consular agents.

IV. THE NATIONAL GOVERNMENT

CIVIL SERVICE

CLINTON ROGERS WOODRUFF

The Federal Service.—The National Civil Service Reform League's committee on the U. S. Civil Service Commission adopted a report which demanded the reorganization of that body because of its "inherent incapacity," as demonstrated by its past record, for the new reconstruction tasks in prospect. A copy of the report was sent to President Wilson, who promised in April to effect a reorganization of the Commission. As evidence of the need for reorganization, the report cited the Commission's acquiescence in the partisan reorganization of the rural free-delivery service; its neglect to ask for appropriations obviously needed for war work; its failure to use adequate recruiting methods; and its refusal to submit lists and ratings to public inspection. A complete reorganization of the Commission was effected by the voluntary resignation of President John A. McIlhenny and the requested resignations of Commissioners Herman W. Craven and Charles M. Galloway, and the appointment as commissioners of Martin L. Morrison, former Senator from Indiana, and George R. Wales, chief examiner of the Commission. It is believed that a woman will be appointed to the vacant commissionerhip.

The operation of the President's executive order of March, 1917, which provided for the examination by the Commission of all candidates for the position of postmaster in offices of the first, second, and third classes has demonstrated that a superior class of official has been secured than under the old spoils system of appointment. There has been, however, considerable controversy between the Postmaster-General and the Commission over the conduct of the examinations. In September the House of Representatives passed a resolution calling for an investigation of Postmaster-General Burleson's acts in filling vacancies.

Despite earnest efforts by the National Civil Service Reform League, Congress enacted the Census bill with a rider granting absolute preference in civil appointments to all honorably discharged soldiers and sailors and

their widows. The bill provides for the appointment of 85,000 persons. The Prohibition Enforcement Act contains a provision that an indefinite number of employees in the Bureau of Internal Revenue, possibly 30,000, to be appointed for the purpose of enforcing the prohibition law, are to be exempted from civil-service examinations. A step toward the reform of the Federal legislative civil service was taken by the House in January when an amendment to the Legislative, Executive, and Judicial Appropriation Act was adopted forbidding the payment to members of Congress of allowances for clerk hire.

The absence of standard titles, work specifications, or salaries among the great mass of the employees in the Federal departments at Washington, whether clerical, labor, or technical, has long been recognized as a fundamental weakness of the personnel system. An Act of March 1, 1919, (40 Stat. 1269) created a Joint Commission on Reclassification of Salaries,

to investigate the rates of compensation paid to civilian employes by the municipal government and the various executive departments and other government establishments in the District of Columbia, except the Navy Yard and the postal service, and report by bill or otherwise as soon as practicable what reclassification and readjustment of compensation should be made, so as to provide uniform and equitable pay for the same character of employment throughout the District of Columbia in the services enumerated.

This Commission is composed of three Senators, appointed by the Vice-President, and three former Representatives, who were members of the Sixty-fifth Congress, appointed by the Speaker of the House. The Commission has followed the plan of decentralizing the preliminary investigation almost completely. The actual work of studying the organization of the several departments, developing standard classifications and classifying individual positions is for the most part being done by officers and employees of the several departments and bureaus detailed to the Commission for the purpose. From the beginning the Commission has emphasized the

IV. THE NATIONAL GOVERNMENT

representation of the employees themselves on the numerous committees that have been set up. A novel feature is the definite recognition by the Commission of the Federal Employees' Union, now numbering some 30,000, as officially competent to speak for the employees. The work of the Commission applies only to employees in the District of Columbia, as it is here that the need for reclassification has been most acute. In the field services of the Post Office Department Congress has provided for a commission on the reclassification of salaries in the postal service (Act of Feb. 28, 1919, 40 Stat. 1200).

The number of applicants for the Federal service examined during the year ended June 30, 1919, was about 350,000 and the number appointed about 170,000. During the 19 months of America's participation in the war it is estimated that more than 950,000 persons were examined by the Federal Commission, and 400,000 of these were appointed. For many technical positions and for trades positions there has been a scarcity of applicants, and it has been necessary actively to canvass the country. In addition to the 3,000 local boards of examiners distributed in all parts of the country, the Commission has had the coöperation of 8,000 postmasters at third-class offices, where announcements of examinations were kept before the public. Posters, motion-picture films, and newspaper notices have also been used. The district offices were called upon to discharge a vastly increased volume of business during the war in addition to their normal duties, and consequently they developed the function of rating examination papers for general clerical and other educational examinations in addition to those for trade and labor positions which they formerly rated. The burden upon them during the year 1919 was likewise great because of prevailing labor conditions.

Municipal Civil Service.—The progress of municipal civil service is reported at length in a paper by Charles Kettleborough in the *National Municipal Review* for March, 1919. The war affected the municipal service in many ways. In the first place many persons holding positions in the civil

service left their employment to take up military work; more frequent calls, therefore, were made on the commissions for eligibles from which to supply vacancies. But the commissions were not able to supply the demand because the persons from among whom they ordinarily recruit their eligible lists had also joined the colors. Accordingly the number of applicants for positions was fewer, there were more resignations, and the demands on the commissions for candidates were more frequent. In Massachusetts the condition became so serious that the Commission recommended a temporary arrangement to tide over the exigencies of the war, such as the readjustment of age limitations and physical requirements.

Standardization in municipal civil service has received considerable emphasis during the year. In Milwaukee there has been a notable advance and improvement in the standardization of salaries, titles, and positions. This reform was made possible by the adoption by the Common Council of the report on the standardization of the city service made in 1918 (*A. Y. B.*, 1918, p. 250) and the adoption of the annual salary ordinances in conformity therewith. Los Angeles also reports satisfaction with a standardized salary schedule which has been adopted.

The system of recording periodic individual efficiency records, formerly in operation in St. Paul, has been abolished. Experience proved that an individual efficiency record, determined by mathematical formulæ that contemplates the measuring of the employee's ability, industry, reliability, attendance, and conduct produced no material improvement in the public employment, except in isolated cases, where it proved a worth-while stimulus. On the part of many employees the system caused indifference, discontent, and a suspicion that favoritism dictated the markings. Seniority and meritorious service will be continued as in promotion examinations, and credit for past services will be based on specific, written, renewable facts rather than the mechanical system of recording efficiency by marks that were for the most part based on judgment only.

The New York City Civil Service Commission on Feb. 6, 1919, introduced a new factor into civil-service examinations. It established as one of the subjects of examination a test in citizenship in which each candidate will be given a basic rating of 75 per cent. For each year of domicile in the city of New York one per cent. shall be added with a maximum of five per cent. for each month of war service in the Army or Navy, one per cent. with a maximum of 15 per cent. for each three months of war service outside of the Army or Navy, one-quarter of one per cent. with a maximum of two per cent. for each year of non-war service in the National Guard and for each six months of non-war service in the Army or Navy, one-half of one per cent. with a maximum of five per cent. Deductions will be made for convictions for misdemeanors, felonies, and other law violations and for bad reputation indicated by arrests, discharges from employment, and reports of neighbors. In commenting on this rule a student of civil-service administration asks:

Even if we assume that this factor has been introduced from the best of motives, it is of doubtful legality and of questionable expediency. If the constitution gives preference only to Civil War veterans, has a civil-service commission power to extend this preference to other veterans? Can a civil-service commission legally discriminate against residents of neighboring cities in the same state, and if it can do so, is it wise to bar experts merely because they live outside of the city? Is a man who has served as a stenographer in the Navy entitled to a preference over one whose experience has been in a busy law office; is he likely to be a more efficient stenographer because of his shore duty in the Navy? How does war service outside of the Army or Navy tend to increase fitness for civil-service employment? Is it desirable to admit clever convicted misdemeanants and felons with only a slight handicap in rating their papers? Is it desirable to lower the rating of a candidate merely because a neighbor or a former employer speaks ill of him? Has any agency of the government a legal right to punish a man who has been arrested and honorably discharged by the courts?

National Civil Service Reform League.—The most important work of the National Civil Service Reform League during the year was the investigation of the foreign service by a committee of which Ellery C. Stowell was chairman. The report, issued

after a study extending over a year, recommends far-reaching reforms in the diplomatic and consular service. The most important one is that which urges that the diplomatic and consular service be placed strictly upon the merit basis, thus taking it out of the domain of politics.

The annual meeting was held in Philadelphia on April 11. The old officers, including Richard H. Dana, president, and George T. Keyes, secretary, were reelected.

National Assembly of Civil Service Commissions.—The National Assembly of Civil Service Commissions held its annual meeting at Rochester, June 10-13. The Assembly decided to provide for the establishment of a central service bureau, possibly in conjunction with the National Civil Service Reform League, to be devoted solely to the purpose of directing a scientific investigation of examination methods and to suggest, as a result of this investigation, simplified, standardized, and effective examinations. Ralph L. Peck was elected president, and John T. Doyle was reelected secretary.

Miscellaneous.—Illinois amended the state civil service law to grant a preference to veterans but limited its scope and protected the promotion rights of employees in Chicago. Massachusetts amended her state law by giving an absolute preference to veterans. The Minnesota legislature passed a similar amendment, the validity of which is in doubt. Wisconsin and California granted a preference to veterans provided they receive the same rating as other candidates. The Washington legislature defeated a bill prepared by the Civil Service Reform Association of that state which was intended to regulate the civil service of the state, counties, and cities, except those of the first class. The Association is now planning to initiate a civil-service constitutional amendment for the next general election and is helping in the revision of the rules under which the Tacoma Civil Service Commission will report. A state civil-service bill was also defeated by the Oregon legislature, and in that state likewise this will be followed by a campaign for a constitutional amendment under the direction of the Committee for Civil Service Legislation.

V. STATE AND COUNTY GOVERNMENT

STATE AND COUNTY TABLES

JOHN M. MATHEWS

I. THE STATES OF THE UNION: AREA, POPULATION, AND DATES AND ORDER OF RATIFICATION OR ADMISSION

State	Ratification of Constitution	Area, sq. m.	Population June 1, 1900	Population April 15, 1910	Percentage of Increase 1900-10	Rank in Population, 1910
New Hampshire	June 21, 1788	9,341	411,588	430,572	4.6	39
Massachusetts	Feb. 6, 1788	8,266	2,805,346	3,366,410	20.0	6
Rhode Island	May 29, 1790	1,248	428,556	542,610	26.6	38
Connecticut	Jan. 9, 1788	4,965	308,420	1,114,756	22.7	31
New York	July 26, 1788	49,204	7,268,894	9,113,614	25.4	1
New Jersey	Dec. 18, 1788	8,224	1,883,669	2,537,167	34.7	11
Pennsylvania	Dec. 12, 1787	45,126	6,302,115	7,665,111	21.6	2
Delaware	Dec. 7, 1787	2,370	184,735	202,322	9.5	46
Maryland	April 28, 1788	12,327	1,188,044	1,294,450	9.0	27
Virginia	June 26, 1788	42,627	1,854,184	2,061,612	11.2	20
North Carolina	Nov. 21, 1789	52,426	1,893,810	2,206,287	16.5	16
South Carolina	May 23, 1788	30,989	1,340,316	1,515,400	13.1	26
Georgia	Jan. 2, 1788	59,265	2,216,331	2,609,121	17.7	10
	Date of Admission					
Vermont	Feb. 18, 1791	9,564	343,641	355,956	3.6	42
Kentucky	June 1, 1792	40,598	2,147,174	2,289,905	6.6	14
Tennessee	June 1, 1796	42,022	2,020,616	2,184,789	8.1	17
Maine	March 3, 1820	33,040	694,466	742,371	6.9	34
Texas	Dec. 29, 1845	265,896	3,043,710	3,896,543	27.8	5
West Virginia	June 20, 1863	24,170	958,800	1,221,119	27.4	28
Ohio	April 30, 1802	41,040	4,157,545	4,767,121	14.7	4
Louisiana	April 8, 1812	48,506	1,381,625	1,656,388	19.9	24
Indiana	Dec. 11, 1816	36,354	2,516,462	2,700,876	7.3	9
Mississippi	Dec. 10, 1817	46,865	1,551,270	1,797,114	15.8	21
Illinois	Dec. 3, 1818	56,665	4,821,550	5,638,591	16.9	3
Alabama	Dec. 14, 1819	51,998	1,828,697	2,138,093	16.9	18
Missouri	March 2, 1821	69,420	3,106,665	3,292,335	6.0	7
Arkansas	June 15, 1836	53,335	1,311,564	1,574,449	66.2	25
Michigan	Jan. 26, 1836	57,980	2,420,982	2,810,173	16.1	8
Florida	March 3, 1845	58,666	528,542	752,619	42.1	33
Iowa	Dec. 28, 1846	56,147	2,231,853	2,224,771	-0.3	15
Wisconsin	May 29, 1848	56,066	2,069,042	2,333,860	12.7	13
California	Sept. 9, 1850	158,297	1,485,053	2,377,549	60.1	12
Minnesota	May 11, 1858	84,682	1,751,394	2,075,708	18.5	19
Oregon	Feb. 14, 1859	96,699	413,536	672,765	62.7	35
Kansas	Jan. 29, 1861	82,158	1,470,495	1,690,949	15.0	22
Nevada	March 21, 1864	110,690	42,335	81,875	93.4	48
Nebraska	Feb. 9, 1867	77,520	1,066,300	1,192,214	11.8	29
Colorado	March 3, 1875	103,948	539,700	799,024	48.0	32
North Dakota	Feb. 22, 1889	70,837	319,146	577,056	80.8	37
South Dakota	Feb. 22, 1889	77,615	401,570	583,888	45.4	36
Montana	Feb. 22, 1889	146,997	243,329	376,053	54.5	40
Washington	Feb. 22, 1889	69,127	518,103	1,141,990	120.4	30
Idaho	July 3, 1890	83,888	161,772	325,594	101.3	44
Wyoming	July 10, 1890	97,914	92,531	145,965	57.7	47
Utah	July 16, 1894	84,990	276,749	373,351	34.9	41
Oklahoma	Nov. 16, 1907	70,057	790,391	1,657,155	109.7	23
New Mexico	Jan. 6, 1912	122,634	195,310	327,301	67.6	43
Arizona	Feb. 14, 1912	113,956	122,931	204,354	66.2	45
Total1		23,026,789	75,994,575	91,972,268	21.0	

1 Including Alaska (64,356), Hawaii (191,909), Porto Rico (1,118,012), and military personnel abroad (55,608), the population in 1910 was 93,402,151. Adding estimates for the Philippine Islands (8,265,348), Guam, Tutuila, and the Canal Zone, the total population of the United States and its possessions on April 15, 1910, was 101,748,269.

On July 1, 1918, the population of the continental United States, as estimated by the Bureau of the Census was 106,871,294.

2 2,973,890 sq. miles land, 52,899 sq. miles water.

V. STATE AND COUNTY GOVERNMENT

STATE TAXATION, INDEBTEDNESS, REVENUES, AND EXPENDITURES

(In Thousands of Dollars)

The figures in this table are supplied by the Bureau of the Census from its report, "Financial Statistics of States: 1918." They relate to the fiscal year ended June 30, 1918, or the first fiscal period prior thereto.

State	Assessed Valua- tion of Prop- erty Subject to the General Prop- erty Tax	Total Levy of the Gen- eral Prop- erty Tax	Bonded Debt	Net Debt 1	Receipts		Expenditures	
					Rev- enue	Non- Rev- enue	Gov- ern- men- tal Cost	Non- Gov- ern- men- tal Cost
Alabama	673,226	4,376	9,057	13,277	8,013	4,413	7,933	4,493
Arizona	697,527	3,746	3,009	774	4,664	1,832	4,003	1,712
Arkansas	524,379	3,933	1,468	1,466	4,840	3,659	4,545	3,158
California	2	.....	39,402	39,127	29,786	26,654	33,521	23,066
Colorado	1,305,286	4,072	4,548	4,533	5,120	8,193	5,735	7,448
Connecticut	1,280,077	1,998	12,535	8,569	16,358	8,168	10,712	11,689
Delaware	2	.....	912	874	1,635	714	1,386	774
Florida	322,216	2,900	602	602	3,569	2,506	2,648	2,493
Georgia	991,662	4,958	5,945	6,028	7,927	3,805	7,579	4,081
Idaho	437,593	915	2,712	2,165	2,268	3,324	2,823	2,603
Illinois	2,587,583	23,288	243	2,057	29,072	6,411	25,453	5,985
Indiana	2,123,709	7,454	668	181	14,533	2,780	12,704	3,218
Iowa	1,305,694	7,425	130	130	13,049	3,668	11,502	3,720
Kansas	3,075,274	4,459	.....	.....	7,992	6,546	7,762	5,689
Kentucky	1,859,716	6,751	76	2,587	10,861	7,920	10,880	7,178
Louisiana	706,276	4,414	11,694	13,723	7,580	9,932	7,273	9,674
Maine	521,403	3,211	2,511	3,799	7,369	1,455	7,673	898
Maryland	1,168,686	3,724	27,449	20,156	10,091	9,893	11,143	8,812
Massachusetts	4,501,564	10,921	130,618	87,984	30,824	41,010	32,029	38,812
Michigan	3,087,453	14,858	2,500	9,225	24,264	10,772	24,749	8,623
Minnesota	1,804,059	5,939	1,391	1,391	23,735	4,852	19,802	6,607
Mississippi	637,520	2,550	3,053	5,431	5,254	2,936	5,481	2,905
Missouri	1,951,669	3,513	2,384	6,783	13,022	2,112	13,012	2,757
Montana	536,767	1,700	1,163	959	6,374	10,985	4,220	12,095
Nebraska	529,322	4,504	.....	.....	5,390	1,877	6,057	2,035
Nevada	167,421	1,100	356	736	1,365	1,457	1,403	1,693
New Hampshire	478,621	1,346	818	1,798	2,456	1,520	2,792	1,683
New Jersey	2,937,052	12,694	.....	116	23,181	4,368	21,131	4,491
New Mexico	357,063	1,933	3,497	2,799	2,292	4,270	2,873	3,912
New York	12,091,438	14,120	236,215	181,289	81,786	37,729	84,951	46,651
North Carolina	942,766	2,608	9,363	9,488	5,907	4,159	5,407	3,756
North Dakota	394,723	1,697	447	436	5,061	6,998	4,828	7,431
Ohio	8,542,734	3,844	2	5,347	23,185	11,749	22,146	8,703
Oklahoma	1,335,221	3,338	6,329	5,990	11,114	9,334	9,006	8,867
Oregon	878,764	2,699	950	499	4,411	4,470	4,380	3,858
Pennsylvania	2	.....	1,072	473	34,058	5,922	30,902	6,729
Rhode Island	769,348	923	7,624	6,437	4,464	615	4,278	553
South Carolina	349,674	2,732	5,338	5,438	3,158	3,899	2,540	3,199
South Dakota	1,441,475	2,165	6,425	.....	5,207	12,513	5,036	7,844
Tennessee	700,466	3,502	13,077	16,005	6,459	4,090	7,179	3,079
Texas	2,888,365	17,330	4,737	4,737	24,314	4,995	22,205	4,700
Utah	595,211	3,091	3,060	2,712	4,153	3,829	4,586	3,480
Vermont	281,071	1,491	752	785	3,784	982	3,591	937
Virginia	1,270,756	3,310	22,112	22,862	10,654	5,523	9,992	6,224
Washington	1,000,083	8,331	344	672	11,835	6,955	11,095	8,045
West Virginia	1,374,507	1,576	.....	.....	5,721	7,690	4,023	7,605
Wisconsin	4,244,391	10,855	.....	1,951	18,095	3,618	16,648	3,596
Wyoming	247,517	953	102	102	2,055	2,858	1,868	2,622

1 Net debt is funded and floating debt less sinking fund assets.

2 General property not assessed for state purposes.

III. STATE CONSTITUTIONS

For the revision of the table of state constitutions on pp. 184-9 of the AMERICAN YEAR BOOK for 1910, it is necessary only to note that the following states have adopted popular initiative as a second means of proposing amendments: California (1911), Colorado (1910), Massachusetts (1918), Michigan (1913), Nebraska (1912), North Dakota (1914), and Ohio (1912). The data for Arizona and New Mexico, admitted as states in 1912, are as follows:

STATE	Date	METHOD OF ADOPTION		PRESENT METHOD OF AMENDMENT				PRESENT METHOD OF GENERAL REVISION	
		Framed by	Popular Ratification	Proposed by	Limitations	Popular Ratification	% of each house and popular vote	Convention Called by	Popular Ratification
New Mexico...	1911	Convention	Yes	$\frac{2}{3}$ members of each house	Not more than three at one time	Majority equal to 40 per cent. of total vote in one-half counties			Majority of votes
Arizona	1911	Convention	Yes	(1) Majority of each house (2) Popular initiative		Majority vote on question		Popular vote	Majority vote

IV. STATE AND TERRITORIAL GOVERNORS

STATE OR TERRITORY	Governor	Capital	Length of term	Term Expires	Salary
Maine	<i>C. E. Miltiken</i>	Augusta	2	January, 1921	\$5,000
New Hampshire	<i>J. H. Bartlett</i>	Concord	2	January, 1921	3,000
Vermont	<i>F. W. Clement</i>	Montpelier	2	January, 1921	3,000
Massachusetts	<i>Calvin Coolidge</i>	Boston	2	January, 1922	10,000
Rhode Island	<i>R. L. Beechman</i>	Providence	2	January, 1921	3,000
Connecticut	<i>M. H. Holcomb</i>	Hartford	2	January, 1921	5,000
New York	A. E. Smith	Albany	2	January, 1921	10,000
New Jersey	E. I. Edwards	Trenton	3	January, 1923	10,000
Pennsylvania	W. C. Sproul	Harrisburg	4	January, 1921	10,000
Delaware	<i>J. G. Townsend</i>	Dover	4	January, 1921	4,000
Maryland	A. C. Ritchie	Annapolis	4	January, 1924	4,500
Virginia	Westmoreland Davis	Richmond	4	February, 1922	5,000
West Virginia	J. J. Cornwell	Charleston	4	March, 1921	5,000
North Carolina	T. W. Bickett	Raleigh	4	January, 1921	6,500
South Carolina	R. A. Cooper	Columbia	2	January, 1921	3,000

Democrats in Roman; Republicans in *Italic*.

IV. STATE AND TERRITORIAL GOVERNORS—Continued

STATE OR TERRITORY	Governor	Capital	Length of Term	Term Expires	Salary
Georgia	Hugh M. Dorsey	Atlanta	2	June, 1921	\$7,500
Florida	Sidney J. Catts	Tallahassee	4	January, 1921	6,000
Kentucky	E. P. Morrow	Frankfort	4	December, 1923	6,500
Tennessee	A. H. Roberts	Nashville	2	January, 1921	4,000
Alabama	T. E. Kilby	Montgomery	4	January, 1923	7,500
Mississippi	L. M. Russell	Jackson	4	January, 1924	5,000
Arkansas	C. H. Brough	Little Rock	2	January, 1921	5,000
Louisiana	R. G. Pleasant	Baton Rouge	4	January, 1920	7,500
Texas	W. P. Hobby	Austin	2	May, 1921	4,000
Oklahoma	J. E. A. Robertson	Oklahoma City	4	January, 1923	4,500
Ohio	J. M. Cox	Columbus	2	January, 1921	10,000
Indiana	J. P. Goodrich	Indianapolis	4	January, 1921	8,000
Illinois	F. O. Lowden	Springfield	4	January, 1921	12,000
Michigan	A. E. Sleeper	Lansing	2	January, 1921	5,000
Wisconsin	E. L. Philipp	Madison	2	January, 1921	5,000
Minnesota	J. A. A. Burnquist	St. Paul	2	January, 1921	7,000
Iowa	W. L. Harding	Des Moines	2	January, 1921	5,000
Missouri	F. D. Gardner	Jefferson City	4	January, 1921	5,000
Kansas	H. J. Allen	Topeka	2	January, 1921	5,000
Nebraska	S. R. McKelvie	Lincoln	2	January, 1921	2,500
South Dakota	P. Norbeck	Pierre	2	January, 1921	3,600
North Dakota	S. J. Doyle	Bismarck	2	January, 1921	3,000
Montana	S. V. Stewart	Helena	4	January, 1921	7,500
Idaho	D. W. Davis	Boise	2	January, 1921	5,000
Wyoming	R. D. Carey	Cheyenne	2	January, 1923	4,000
Colorado	O. H. Shoup	Denver	2	January, 1921	5,000
New Mexico	O. O. Larracole	Santa Fé	2	January, 1921	5,000
Arizona	Thomas Campbell	Phoenix	2	January, 1921	6,000
Utah	S. Bamberger	Salt Lake City	4	January, 1921	6,000
Nevada	Enmet Boyle	Carson City	4	January, 1923	7,000
California	W. D. Stephens	Sacramento	4	January, 1923	10,000
Oregon	B. W. Olcott	Salem	4	January, 1923	5,000
Washington	L. F. Hart	Olympia	4	January, 1921	6,000
Alaska	J. E. A. Strong	Juneau	4	April, 1921	7,000
Hawaii	L. E. Pinkham	Honolulu	4	November, 1921	7,000
Porto Rico	Arthur Yager	San Juan	Indef.		10,000
Philippine Islands	F. B. Harrison	Manila	Indef.		18,000

Democrats in Roman; Republicans in *Italic*.

V. STATE AND TERRITORIAL LEGISLATURES

V. STATE AND COUNTY GOVERNMENT

STATE OR TERRITORY	NUMBER OF MEMBERS		LENGTH OF TERM (YEARS)		Regular Sessions	Regular Session Begins	Limit of Session (days)	Salary
	Senate	House	Senate	House				
<i>Maine</i>	31	151	2	2	Biennial	January, 1921	None	\$400 per session.
<i>New Hampshire</i>	24	413	2	2	Biennial	January, 1921	None	200 per session.
<i>Vermont</i>	30	247	2	2	Biennial	January, 1921	None	4 per day.
<i>Massachusetts</i>	40	240	1	1	Annual	January, 1920	None	1,500 per year.
<i>Rhode Island</i>	39	100	2	2	Annual	January, 1920	60	5 per day.
<i>Connecticut</i>	35	258	2	2	Biennial	January, 1921	5 mo.	300 per year.
<i>New York</i>	51	150	2	1	Annual	January, 1920	None	\$1,500 per year.
<i>New Jersey</i>	21	60	3	1	Annual	January, 1920	None	1,500 per year.
<i>Pennsylvania</i>	50	207	4	2	Biennial	January, 1921	60	10 per day.
<i>Delaware</i> 1	17	35	4	2				
<i>Maryland</i>	27	102	4	2	Biennial	January, 1920	90	\$5 per day.
<i>Virginia</i>	40	100	4	2	Biennial	January, 1920	60 2	500 per session.
<i>West Virginia</i>	30	96	4	2	Biennial	January, 1921	45	4 per day.
<i>North Carolina</i>	50	120	2	2	Biennial	January, 1921	60	4 per day.
<i>South Carolina</i>	44	124	4	2	Annual	January, 1920	40	200 per session.
<i>Georgia</i>	51	153	2	2	Annual	June, 1920	50	7 per day.
<i>Florida</i>	32	77	4	2	Biennial	April, 1921	60	6 per day.
<i>Kentucky</i>	38	100	4	2	Biennial	January, 1920	60	\$10 per day.
<i>Tennessee</i>	33	100	2	2	Biennial	January, 1921	75	4 per day.
<i>Alabama</i>	35	106	4	4	Quadrennial	January, 1923	50	4 per day.
<i>Mississippi</i>	45	150	4	4	Biennial	January, 1920	None	500 per session.
<i>Arkansas</i>	35	100	4	2	Biennial	January, 1921	60	6 per day.
<i>Louisiana</i>	42	120	4	4	Biennial	May, 1920	60	5 per day. 3
<i>Texas</i>	31	147	4	2	Biennial	January, 1921	None	5 per day.
<i>Oklahoma</i>	44	111	4	2	Biennial	January, 1921	60	6 per day. 3

Democratic legislatures in Roman; Republican in *Italic*. 1 Republican Senate, Democratic House. 2 Can be extended 30 days by $\frac{2}{3}$ vote. 3 For 60 days; \$2 per day thereafter.

V. STATE AND COUNTY GOVERNMENT

V. STATE AND TERRITORIAL LEGISLATURES—Continued

STATE OR TERRITORY	NUMBER OF MEMBERS		LENGTH OF TERM (YEARS)		Regular Sessions	Regular Session Begins	Limit of Session (days)	Salary
	Senate	House	Senate	House				
Ohio	33	124	2	2	Biennial	January, 1921	None	\$1,000 per year.
Indiana	50	100	4	2	Biennial	January, 1921	61	6 per day.
Illinois	51	153	4	2	Biennial	January, 1921	None	3,500 per biennium.
Michigan	32	100	2	2	Biennial	January, 1921	None	800 regular session.
Wisconsin	33	100	4	2	Biennial	January, 1921	None	5 per day, extra session.
MINNESOTA	67	132	4	2	Biennial	January, 1921	90	500 per session.
Iowa	50	108	4	2	Biennial	January, 1921	None	1,000 regular session.
Missouri	34	142	4	2	Biennial	January, 1921	70	10 per day, extra session.
Kansas	40	125	4	2	Biennial	January, 1921	None	5 per day.
Nebraska	33	100	2	2	Biennial	January, 1921	60	3 per day.
South Dakota	45	104	2	2	Biennial	January, 1921	60	600 per session.
NORTH DAKOTA	49	113	4	2	Biennial	January, 1921	60	5 per day.
Montana	41	95	4	2	Biennial	January, 1921	60	\$10 per day.
Idaho	44	67	2	2	Biennial	January, 1921	60	5 per day.
Wyoming	27	57	4	2	Biennial	January, 1921	40	8 per day.
Colorado	35	65	4	2	Biennial	January, 1921	90	1,000 per session.
New Mexico	24	49	4	2	Biennial	January, 1921	60	5 per day.
Arizona	19	35	2	2	Biennial	January, 1921	60	7 per day.
Utah	18	46	2	2	Biennial	January, 1921	60	4 per day.
Nevada	17	37	4	2	Biennial	January, 1921	60	10 per day.
California	40	80	4	2	Biennial	January, 1921	1	1,000 regular session.
Oregon	30	60	4	2	Biennial	January, 1921	40	10 per day, extra session.
Washington	42	97	4	2	Biennial	January, 1921	60	3 per day.
Alaska	8	16	4	2	Biennial	March, 1921	60	\$15 per day.
Hawaii	15	30	4	2	Biennial	February, 1921	60	600 per session.
Porto Rico	19	39	4	4	Annual	February, 1920	60	{ 3,000 per year for 4 members of Senate, 5 serving without pay.
Philippine Islands..	24	90	6	3	Annual	October, 1920	100	{ 4,000 for senators. 3,000 for representatives.

Democratic legislatures in Roman; Republican in *Italics*; Non-Partisan in SMALL CAPS. 1 Split session: first part, 30 days; recess, 30 days; no limit to second part.

V. STATE AND COUNTY GOVERNMENT

VI. STATE JUDICIARY

STATE	HIGHEST STATE COURT					OTHER COURTS				
	Name of Court	No. of Judges	Length of Term (years)	How Chosen	Salary	Name	No. of Dis.	No. of Judges	Term (yrs.)	How Chosen
Maine	Supreme Court	8	7	Gov. and Council	\$5,000	Nisi Prius Superior Courts in 2 counties	.....	.....	.....	.....
New Hampshire	Supreme Court	5	1	Gov. and Council	5,000	Superior Court	10	2	7	Gov. and Council
Vermont	Supreme Court	5	2	Legislature	4,000	County Courts	14	6	(a)	Gov. and Council
Massachusetts ..	Supreme Court	7	2	Gov. and Council	10,500	Superior Court	.....	28	(b)	Legislature
Rhode Island ..	Supreme Court	5	3	Legislature	10,000	Superior Court	.....	7	(c)	Gov. and Council
Connecticut	Court of Errors	5	8	Gov. and Legislature	8,000	District Courts	12	13	3	Legislature
					9,500	Superior Court	8	11	8	Gov. and Legis.
					9,000	Court of Common Pleas in 5 counties	5	8	4	Gov. and Legis.
New York	Court of Appeals	7	14	Elected	\$14,200	Appellate Division	4	25	.....	.....
New Jersey	Court of Error and Appeals	16	7	Gov. and Senate	13,700	Supreme Court	9	107	14	Elected
					13,000	County Courts	.....	.....	6	Elected
					12,000	Chancery	.....	9	7	Gov. and Senate
Pennsylvania ..	Supreme Court	7	21	Elected	13,500	Supreme Court	9	9	7	Gov. and Senate
Delaware	Supreme Court	6	12	Gov. and Senate	13,000	Circuit Court	6	6	7	Gov. and Senate
					7,500	County Courts	.....	.....	.....	Gov. and Senate
					7,250	Superior Court	5	7	10	Elected
						Court of Common Pleas	.....	.....	.....	.....
						Chancellor	.....	.....	12	Gov. and Senate
Maryland	Court of Appeals	8	15	Elected by Districts	\$6,800	Circuit Courts	8	22	15	Elected
Virginia	Supreme Court of Appeals	5	12	Legislature	5,200	Special Balt. Circuit Courts	31	31	.....	.....
					5,000				8	Legislature
West Virginia ..	Supreme Court of Appeals	5	12	Elected	8,000	Circuit Courts	23	24	8	Elected
North Carolina ..	Supreme Court	5	8	Elected	5,000	Superior Court	20	20	8	Elected
South Carolina ..	Supreme Court	5	10	Legislature	3,000	Circuit Courts	14	14	8	Legislature
Georgia	Supreme Court	6	6	Elected	5,000	Court of Appeals	3	6	6	Elected
						Superior Court	28	31	4	Elected
Florida	Supreme Court	5	6	Elected	4,500	Circuit Courts	13	14	4	Gov. and Senate
						County Courts	.....	.....	.....	.....

1 Until 70 years of age. 2 During good behavior. 3 Until removed by the legislature.

V. STATE AND COUNTY GOVERNMENT

VI. STATE JUDICIARY—Continued

HIGHEST STATE COURT					OTHER COURTS					
STATE	Name of Court	No. of Judges	Length of Term (years)	How Chosen	Salary	Name	No. of Dist.	No. of Judges	Term (yrs.)	How Chosen
Kentucky	Court of Appeals	7	8	Elected by districts	\$5,000	Circuit Courts	35	43	6	Elected
Tennessee	Supreme Court	5	8	Elected	5,000	Court of Civil Appeals	23	5	8	Elected
						Chancery Court	14	14	8	Elected
						Circuit Courts	18	18	8	Elected
						Criminal Court	8	8	8	Elected
Alabama	Supreme Court	7	6	Elected	5,000	Chancery Courts	5	5	6	Elected
Mississippi	Supreme Court	6	8	Elected	4,500	Circuit Courts	16	16	6	Elected
Arkansas	Supreme Court	5	8	Elected	4,000	Chancery Courts	13	.....	4	Gov. and Senate
Louisiana	Supreme Court	5	12	Elected	6,000	Circuit Courts	18	21	6	Elected
						Circuit Courts of Appeals	4	9	8	Elected
Texas	Supreme Court	3	6	Elected	6,500	District Courts	30	32 ^a	4	Elected
						Court of Criminal Appeal	.....	3	6	Elected
						Courts of Civil Appeals	9	27	6	Elected
Oklahoma	Supreme Court	9	6	Elected	4,000	District Courts	3	3	4	Elected
						Criminal Court of Appeals	.....	3	6	Elected
						District Courts	27	33	4	Elected
Ohio	Supreme Court	7	6	Elected	\$6,500	Courts of Appeal	8	24	6	Elected
						Courts of Common Pleas	.....	.....	6	Elected
Indiana	Supreme Court	5	6	Elected	6,000	Appellate Courts	2	6	4	Elected
						Circuit Courts	68	68	6	Elected
Illinois	Supreme Court	7	9	Elected	10,000	Superior Courts in 10 cos.	.....	14	4	Elected
						Courts of Appeal	4	15	.....	.....
						Circuit Courts	18	65	6	Elected
Michigan	Supreme Court	8	8	Elected	7,000	County Courts	102	102	4	Elected
Wisconsin	Supreme Court	7	10	Elected	9,000	Circuit Courts	39	49	6	Elected
						Circuit Courts	20	25	6	Elected
Minnesota	Supreme Court	5	6	Elected	8,500	District Courts	19	46	6	Elected
Iowa	Supreme Court	7	6	Elected	7,000	District Courts	21	64	4	Elected
Missouri	Supreme Court	7	10	Elected	6,000	Courts of Appeal	3	9	12	Elected
Kansas	Supreme Court	7	6	Elected	7,500	Circuit Courts	38	65	6	Elected
Nebraska	Supreme Court	7	6	Elected	4,000	District Courts	34	38	4	Elected
South Dakota	Supreme Court	5	6	Elected	4,500	District Courts	18	32	4	Elected
North Dakota	Supreme Court	5	10	Elected	3,600	Circuit Courts	12	13	4	Elected
					5,500	District Courts	12	12	4	Elected

VI. STATE JUDICIARY—Continued

STATE	HIGHEST STATE COURT				OTHER COURTS					
	Name of Court	No. of Judges	Length of Term (years)	How Chosen	Salary	Name	No. of Disits.	No. of Judges	Term (yrs.)	How Chosen
Montana	Supreme Court	3	6	Elected	\$6,000	District Courts	18	27	4	Elected
Idaho	Supreme Court	3	6	Elected	5,000	District Courts	9	12	4	Elected
Wyoming	Supreme Court	3	8	Elected	5,000	District Courts	7	7	6	Elected
Colorado	Supreme Court	7	10	Elected	5,000	District Courts	13	22	6	Elected
New Mexico	Supreme Court	3	8	Elected	6,000	County Courts	.....	.....	.....	.....
Arizona	Supreme Court	3	6	Elected	5,000	District Courts	8	8	6	Elected
Utah	Supreme Court	3	6	Elected	5,000	Superior Courts	14	14	4	Elected
Nevada	Supreme Court	3	6	Elected	5,000	District Courts	7	12	4	Elected
California	Supreme Court	7	6	Elected	6,000	District Courts	10	10	4	Elected
.....	Supreme Court	7	12	Elected	8,000	Courts of Appeal	3	9	12	Elected
Oregon	Supreme Court	7	6	Elected	4,500	Superior Courts	58	103	4	Elected
Washington	Supreme Court	9	8	Elected	6,000	Circuit Courts	20	25	6	Elected
.....	.....	.....	.....	.....	.....	Superior Courts	39	59	4	Elected

VII. COUNTY OFFICERS

STATE	No. of Counties	County Bd., No. of Members	County Judge	Probate Judge	Prosecuting Attorney	Sheriff	Coroner	Clerk of Court	Register of Probate	County Clerk	Register of Deeds	County Auditor	County Assessor	County Treasurer	County Surveyor	Supt. of Schools	Supl. of Poor	Health Officer
Maine	16	3		El.	El.	El.	App.	El.	El.	....	El.	App.	El.	El.		El.		
New Hampshire.	10	3		App.	El.	El.	App.	App.	El.	....	El.	App.	El.	El.		App.		App.
Vermont	14		El.	dist.	El.	El.	....	App.	App.	App.	El.	App.	El.	El.		App.		
Massachusetts ..	14	3		App.	Dist.	El.	....	El.	El.	....	El.	El.	El.	El.		s.	s.	App.
Rhode Island ..	5	None		App.	App.	App.	App.	App.	El.	....	El.	App.	El.	El.		App.		App.
Connecticut	8	App. 3	s.	dist.	App.	El.	App.	App.	El.	....	s.	App.	El.	App.		App.		App.
New York	62	Var.	El.	El.	El.	El.	El.	....	El.	El.	s.	App.	El.	El.		dist.	App.	App.
New Jersey	21	Var.	App.	App.	App.	El.	El.	El.	El.	El.	s.	App.	El.	App.		App.	s.	App.
Pennsylvania ..	67	3	El.	El.	El.	El.	El.	El.	El.	....	El.	El.	El.	El.		App.	s.	App.
Delaware	3	7-10		El.	El.	El.	El.	El.	El.	....	El.	App.	El.	El.		App.	s.	App.
Maryland	24	3-7		El.	El.	El.	App.	El.	El.	App.	El.	App.	App.	El.		App.	App.	App.
Virginia	100	3-8		....	El.	El.	App.	El.	El.	El.	....	App.	App.	El.		App.	App.	App.
West Virginia ..	18a	3		....	El.	El.	App.	El.	El.	El.	....	App.	App.	El.		App.	App.	App.
	55			El.	El.	El.	App.	El.	El.	El.	....	El.	El.	El.		El.	App.	App.

V. STATE AND COUNTY GOVERNMENT

VII. COUNTY OFFICERS—Continued

STATE	No. of Counties	County Bd., No. of Members	County Judge	Probate Judge	Prosecuting Attorney	Sheriff	Coroner	Clerk of Court	Register of Probate	County Clerk	Register of Deeds	County Auditor	County Assessor	County Treasurer	County Surveyor	Supt. of Schools	Supt. of Poor	Health Officer
North Carolina..	100	3-5		El.	Dist.	El.	El.	El.		....	El.	App.		El.	El.	App.	App.	App.
South Carolina..	44	Var.	sEl.	El.	Dist.	El.	El.	El.		El.	El.			El.	El.	El.	s	App.
Georgia	152	3-5	El.	El.	Dist.	El.	El.	El.		El.	El.			El.	El.	El.		App.
Florida	52																	App.
Kentucky	120	3-8	El.	....	El.	El.	App.	El.		El.	El.	....		App.	El.	App.		App.
Tennessee	96	3	El.	El.	Dist.	El.	El.	El.		....	....	....		El.	App.	App.		App.
Alabama	67	5	....	El.	Dist.	El.	El.	El.		....	....	El.		El.	App.	App.		App.
Mississippi	79	Var.			El.	El.	El.	El.		El.	....	El.		App.	App.	App.		App.
Louisiana	64b				El.	El.	El.	El.		El.	....	El.		El.	El.	El.		App.
Texas	253	3	El.	El.	El.	El.	El.	El.		El.	El.	El.		El.	El.	El.		App.
Oklahoma	78	3		....	El.	El.	El.	El.		El.	El.	s		El.	El.	App.		App.
Arkansas	75	Var.	El.	El.	Dist.	El.	El.	El.		El.	....	....		El.	El.	El.		App.
Missouri	114	3		El.	El.	El.	El.	El.		El.	s	....		El.	El.	El.		App.
Ohio	88	3	El.	El.	El.	El.	El.	El.		El.	El.	El.	App.	El.	El.	App.		App.
Indiana	92	3(7)c	s.	s.	El.	El.	El.	El.		El.	El.	....	s.	El.	El.	El.		App.
Illinois	102	Var.	El.	s.	El.	El.	El.	El.		El.	El.	....	....	El.	El.	El.		App.
Michigan	83	Var.	El.	El.	El.	El.	El.	El.		El.	El.	s	....	El.	El.	El.		App.
Wisconsin	71	Var.	El.	El.	El.	El.	El.	El.		El.	El.	....	....	El.	El.	El.		App.
Minnesota	86	5-7	El.	El.	El.	El.	El.	El.		....	....	....	....	El.	El.	El.		App.
Iowa	89	3-7	El.	El.	El.	El.	El.	El.		El.	El.	El.	App.	El.	El.	El.		App.
Kansas	105	3	El.	El.	El.	El.	El.	El.		El.	s	El.	s	El.	El.	El.		App.
Nebraska	93	Var.	El.	....	El.	El.	El.	El.		El.	El.	....	....	El.	El.	El.		App.
South Dakota ..	63	1-5	El.	El.	El.	El.	El.	El.		....	El.	El.	s	El.	El.	El.		App.
North Dakota ..	53	3-5	El.	El.	El.	El.	El.	El.		....	El.	El.	....	El.	El.	El.		App.
Montana	43	3			El.	El.	El.	El.		El.	El.	....	....	El.	El.	El.		App.
Idaho	37	3		El.	El.	El.	El.	El.		El.	....	....	....	El.	El.	El.		App.
Wyoming	21	3	El.	....	El.	El.	El.	s		El.	....	....	....	El.	El.	El.		App.
Colorado	63	3-5	El.	El.	Dist.	El.	El.	El.		El.	....	....	....	El.	El.	El.		App.
New Mexico	26	3	El.	El.	Dist.	El.	El.	El.		s	....	s	....	El.	El.	El.		App.
Arizona	14	3	El.	El.	El.	El.	El.	El.		El.	....	....	....	El.	El.	El.		App.
Utah	27	3		....	El.	El.	El.	El.		El.	El.	....	....	El.	El.	El.		App.
Nevada	16	3	El.	....	El.	El.	El.	El.		El.	El.	....	....	El.	El.	El.		App.
California	58	3-5	El.	....	El.	El.	El.	App.		El.	El.	s	....	El.	El.	El.		App.
Oregon	36	3		....	Dist.	El.	El.	....		El.	El.	El.	....	El.	El.	El.		App.
Washington	39	3		....	El.	El.	El.	....		El.	....	....	....	El.	El.	El.		App.

a. Cities. b. Parishes. c. 3 county commissioners; 7 members in the county councils. El., an elective county office. s., a county office in some counties. App., an appointive county office., duties performed by some other officer, dist., elected or appointed for district smaller than a county. Var., number varies in different counties. Dist., elected or appointed for district larger than a county. * In Los Angeles county, the most populous county in California, the "short ballot" has been adopted. The only county officers elected by popular vote are the board of supervisors, auditor, district attorney, and assessor. All others are appointed by the board of supervisors.

STATE ADMINISTRATION

JOHN M. MATHEWS

Reconstruction Problems.—The key-note in state activity during the year 1919, as in all lines of governmental activity, has been reconstruction and renovation so as to make the organization and work of the state administration more nearly adequate to the needs of the present day. With demobilization and the return of peace the problem of efficient administration becomes, if possible, even more insistent, for the new conditions with which the states are confronted present problems which require all the energy and wisdom of the state governments for their solution. On the invitation of President Wilson a conference of governors, together with Cabinet officers and mayors, met at the White House in March to consider in general the problems of reconstruction, especially those relating to labor and unemployment. This conference brought about a profitable interchange of opinion between the executive heads of the different states and cities as to the proper line of action to adopt in the emergency, but unfortunately little else of a definite character resulted. Hostilities came to an end so suddenly that it was difficult to formulate at once broad and well considered plans of reconstruction. In New York Governor Smith appointed a Reconstruction Commission which made an investigation and report, but the legislature failed to give financial support to the Commission or to adopt its recommendations.

Constitutional Conventions.—Two states, Illinois and Nebraska, have recently decided to hold constitutional conventions, which will be in session during the early months of 1920, and the New Hampshire convention, suspended during the war, will likewise be resumed. The time is now ripe for thoroughgoing reform in our state governments, and the calling of constitutional conventions in those states opens for them the opportunity to assume leadership in this movement. As the social, economic, and political conditions in the states have developed and expanded, the framework of government has become more and

more inadequate to the needs of the present day. Without depreciating the wisdom of those who framed existing constitutions, it is inevitable that years of experience in the working of a form of government should reveal defects and possible lines of improvement. The executive and administrative side of government is no exception to this rule. The states have become important experiment stations in government, and devices such as the cabinet form of government, which is new to this country, or the concentration of executive control over the administration, which is new to the states, if worked out successfully in one or two states, may have a widespread influence for good throughout the country.

The Governor.—Massachusetts, the last state to cling to annual elections for governor, has abandoned that plan, having provided by constitutional amendment in 1918 for biennial elections for governor and other state officers. This represents, however, only a nominal increase in the length of the governor's term of office, since it had been the usual custom under the old plan to reelect governors for an additional term.

During 1919 occurred the deaths of Governors Lister of Washington and Withycombe of Oregon. As Oregon is one of the dozen states that have no lieutenant-governor, the secretary of state, B. W. Olcott, succeeded to the governorship in accordance with the constitution. There is also in that instrument, however, a provision to the effect that no person shall hold more than one lucrative office at the same time. In order to test the legality of the secretary of state's succession, a suit was instituted between him and Labor Commissioner Hoff, in which the Supreme Court held that when the governor's office becomes vacant, the secretary of state becomes governor in fact and is entitled to receive compensation as such, notwithstanding the clause of the constitution above mentioned (*Olcott v. Hoff*, 181 Pac. 466).

Massachusetts has conferred upon her governor the right, within five

days after any bill or resolve shall have been laid before him, to return it to that branch of the legislature in which it originated with a recommendation that any amendments specified by him be made therein. The bill or resolve is then before the legislature for amendment and in any event must be reenacted before coming again to the governor. In this respect Massachusetts follows substantially similar provisions already found in the constitutions of Virginia and Alabama. The action of the governor contemplated by this provision could doubtless be taken by him without specific constitutional authorization, but by placing it in the fundamental law possible criticism of so-called executive usurpation is disarmed.

In general, the position of the state governor has been strengthened through the further extension of the short-ballot principle, involving the abolition of certain elective officers and the substitution of officers appointed by the governor; through the consolidation of boards and commissions, and regrouping of them into related departments, enabling the governor thereby to exercise more effective control over them; and through the extension of the governor's power over the finances by the introduction in a number of states of the executive budget system. Examples of these various ways in which the governor's powers have been strengthened are hereinafter mentioned.

The Short Ballot.—In Indiana the elective offices of state statistician and state geologist have been abolished; further, commissioners of banking and insurance, to be appointed by the governor, were created, the work of these officers having hitherto been performed under the supervision of the elective state auditor. The most notable case of the abolition of an elective body, however, was that of the Illinois State Board of Equalization, a body of 26 members, which, since the reorganization of the Ohio Board in 1910, has been the most cumbersome, ineffective, and antiquated tax board in the United States. It is succeeded by a small, compact Tax Commission of

three members, appointed by the governor. This Commission has all the powers of the old Board of Equalization and in addition is given the important power to order the reassessment of property in localities where there is reason to believe that the local assessors have failed to make a proper assessment, following, in this respect, the example of Wisconsin and other states. (See also XIII, *Public Finance*.)

Consolidation of State Agencies.—In their messages to the legislatures of 1919 eight governors recommended the consolidation of related state offices for the sake of economy and efficiency, and several others recommended the establishment of a central purchasing agency for state departments. In California an Efficiency and Economy Commission was created, and strenuous efforts were made to bring about a general reorganization of the state administration through the consolidation and abolition of numerous agencies. The recommendations of the Commission were transmitted to the legislature but without the positive support of the governor, and the project failed with the exception of one act (Laws of 1919, Ch. 325) which creates the state Department of Agriculture. Instead of a board there is to be a single director at the head of the Department, and it may be noted as significant that he is to be appointed by the governor alone and to hold office at the pleasure of the governor, thus putting the responsibility for his selection squarely upon that officer and not dividing it by associating the Senate in the exercise of the power of appointment, as is too frequently done. Eight state agencies dealing with agricultural matters were abolished and all their powers and duties transferred to the newly created Department of Agriculture.

The experience of the reformers in Oregon in attempting to carry through their programme for more efficient and economical state administration was a genuine disappointment. The Consolidation Commission, the appointment of which by the governor had been authorized by the legislature of 1917 (A. Y. B., 1917, p. 176), made a thorough investiga-

tion and published a report of its findings and recommendations, together with a proposed bill to carry them into effect (A. Y. B., 1918, p. 235). The Commission advocated a sweeping reorganization of the 70 or more state officers, boards, and agencies into 11 closely knit departments, and showed conclusively how the adoption of this program of consolidation, together with other suggestions for economy made by the Commission, would result in the saving to the taxpayers of the state of hundreds of thousands of dollars biennially. The governor transmitted the report of the Commission to the legislature at its session of 1919, but, as in California, took no positive stand in favor of the recommendations of the Commission which he himself had appointed, contenting himself with merely mentioning the report in an inconspicuous position in his biennial message. The natural result was that the bill embodying the recommendations of the Commission was sidetracked in the legislature, ostensibly on account of a failure of the two houses to agree as to the method of procedure in considering it. A similar experience was had in Illinois at the first legislative session after the report of the Efficiency and Economy Committee of that state was published, but at the following session the recommendations of the Committee were substantially adopted. It is hoped that this precedent may augur success for the Oregon reform programme at the legislative session of 1921.

In Texas an important act was passed creating a state Board of Control with wide powers (Laws of 1919, Ch. 167). The Board is to be composed of three citizens appointed by the governor with the advice of the Senate. The work of the Board is to be organized into the divisions of public printing, purchasing, auditing, design, construction and maintenance, estimates and appropriations, and eleemosynary institutions. Five state agencies are abolished, together with the boards of managers of about 15 state asylums, and their powers and duties are transferred to the Board of Control, to which is also assigned the function of preparing

the biennial budget for all state offices and departments. In this connection mention should be made of the fact that in Michigan legislative action was secured providing for uniform accounting and central purchasing for state departments; also in Pennsylvania and Nebraska bills have been passed reorganizing a number of state offices and departments.

In Massachusetts an important constitutional amendment was adopted in 1918 providing that "the executive and administrative work of the commonwealth shall be organized in not more than 20 departments, in one of which every executive and administrative office, board, and commission, except those officers serving directly under the governor and council, shall be placed." It is further provided, however, that "such departments shall be under such supervision as the General Court (legislature) may from time to time prescribe by law." This amendment is designed to remedy the confused situation which has resulted from the existence of a "multitude of independent boards and commissions not directly responsible to the governor." This follows the plan embodied in the proposed New York constitution of 1915, except that it provides for 20 departments instead of 17. Both of these figures appear to be too large, but if the legislature is to be absolutely prohibited from creating any additional departments, some leeway should be allowed for unforeseen developments.

One of the most far-reaching reforms in state administrative organization made during the year was effected in Idaho through the enactment of the Administration Consolidation bill, sponsored by Governor Davis. By this Act the civil administration of the state is divided into nine departments, as follows: agriculture; commerce and industry; finance; immigration, labor and statistics; law enforcement; public investments; public welfare; public works; and reclamation. At the head of each department is a single commissioner, appointed by the governor and removable by him at his discretion. The governor is authorized to devise a practical and working basis for coöperation and coördination

of work, eliminating duplication and overlapping of functions. The commissioner at the head of each department is empowered to prescribe regulations, not inconsistent with law, for the government of his department. This is a valuable feature, as it is calculated to eliminate much of the red tape that results from the over-elaboration of legislative enactments for the government of administrative departments.

Law Enforcement.—The creation by the Idaho Act of a state Department of Law Enforcement is significant. This Department is given the power "to enforce all the penal and regulatory laws of the state in the same manner and with like authority as the sheriffs of counties." It is also given numerous special powers, such as the supervision of the registration and licensing of automobiles, dealers, and chauffeurs and all the powers vested by law in the state fish and game warden, his deputies and assistants. Such a department of law enforcement with large powers is needed in many other states. It should have an efficient body of state police under it, such as has been doing splendid work in a number of states, including Pennsylvania and New York, in suppressing crime and promoting the general welfare, particularly of rural districts. Since the close of hostilities there has been a considerable increase of crime all over the country, and this situation renders it imperative that the states should adopt more efficient machinery for law enforcement. This need is further accentuated by the adoption of the prohibition amendment to the Federal Constitution, authorizing enforcement legislation by the states concurrently with that of Congress. Simultaneously with this increased need has come demobilization and the problem of the employment of the returned soldiers. Many of them would make splendid material for the development of state police forces all over the country. State councils of defense should not be demobilized without establishing in their places state departments of law enforcement. Unfortunately, the progress of the movement for more effective law-enforcing machinery is impeded by

the opposition of certain classes, particularly the labor element, who anticipate that their interests may thereby be injured.

State Industrial Enterprise.—Carrying out the policies of the Non-Partisan League, North Dakota has undertaken an interesting experiment in the creation of an Industrial Commission, to be composed of the governor, attorney-general, and commissioner of agriculture and labor, with power to operate all utilities and industries owned or administered by the state except those in the penal, charitable, and educational institutions. Under this plan there is to be a state-owned bank, grain elevators, and flour mills. The bank is authorized to loan money to the farmers of the state at cost on warehouse receipts for grain and other good security. In this connection it should be mentioned that there has been some agitation in favor of state-owned cement plants to combat the high cost of this material in those states that have undertaken an extensive programme of construction of hard-surfaced roads. The announcement of this programme was followed by an immediate increase in the price of most materials used in road building, so that the amounts originally appropriated or provided by bond issues for this purpose are now recognized to be inadequate unless the states take drastic action in the direction of bringing down the prices of the necessary materials. Incidentally it may be mentioned that in a friendly suit in the Supreme Court of Illinois to test the legality of the bond issue of \$60,000,000 for good roads in that state its legality was upheld (*Mitchell v. Lowden*, 123 N. E. 566).

State Budgets.—The governors of a dozen states recommended in their messages to the legislatures of 1919 that state budget systems be introduced or further developed, most of them advocating the executive budget. In nine of these states laws were passed at the 1919 sessions substantially carrying out the governors' recommendations, and in Indiana a constitutional amendment for this purpose was proposed, subject to referendum. In addition, consolidated estimate plans were adopted by law

V. STATE AND COUNTY GOVERNMENT

in four states. Thus, in Minnesota it is provided (Laws of 1919, Ch. 356) that the various departments shall submit their estimates of financial requirements to the governor, who shall assemble and revise them and transmit them to the legislature. In most of the states little experience has thus far been had with the working of the executive budget systems. The one experience with the system that has been had in Illinois seems to show that when the governor's budget is carefully and intelligently prepared and based on accurate and comprehensive information, the legislature, though still clothed with full legal power, will make little change in it. Out of total estimates for the fiscal period in that state of approximately \$52,000,000, the amount actually appropriated differed from the governor's recommendations by only about \$100,000. The success of the executive-budget plan in Illinois is largely dependent upon the existence of a consolidated and centralized administrative system, and, conversely, its failure in other states, such as California, where the legislature added millions of dollars to the governor's estimates, is largely due to a lack of such system. Director of Finance Wright of Illinois testified before the Congressional Committee on a National Budget that he did "not think that we could have submitted an intelligent budget, a budget that the legislature would have concurred in, had it not been for the consolidated form of government." (See also XIII, *Public Finance*.)

Bibliography.—Attention should be called to the publications of the Institute for Government Research, of Washington, D. C. (published by D. Appleton & Co.). Among its recent publications is W. F. Willoughby's *The Movement for Budgetary Reform in the States*. Of especial usefulness for our subject is the recent monograph by G. A. Weber, entitled, *Organized Efforts for the Improvement of Methods of Administration in the United States*. This contains, among other topics, an account of the work, together with lists of the publications, of agencies for investigating the administration of particular states, both official and unofficial, such as consolidation commissions and commissions on efficiency and economy. Some account is also given of the work of the organs of central administrative control found in various states, such as the Wisconsin State Board of Public Affairs and the Massachusetts supervisor of administration. Other recent sources of information are:

LOWDEN, F. O.—"Problems of Civil Administration." (*North Am. Rev.* Aug., 1919.)

BUCK, A. E.—"Present Status of the Executive Budget in the State Governments." (*Nat. Munic. Rev.*, Aug., 1919.)

LEWIS, H. T.—"Idaho Sets its House in Order." (*Ibid.*, May, 1919.)

REX, F., and CHILDS, R. S.—"The Work of the Reconstruction Legislatures." (*Ibid.*, July, 1919.)

"State Budget Systems": Supplement to Hearings before the Select Committee on the Budget of the House of Representatives on the Establishment of a National Budget System. (66th Cong., 1st sess., 1919.)

POPULAR GOVERNMENT AND CURRENT POLITICS

ARTHUR N. HOLCOMBE

Woman Suffrage.—The year 1919 marked the triumph in the Congress of the United States of equal suffrage for men and women. The advocates of woman suffrage began their fight for a Federal constitutional amendment just half a century earlier, when the Fifteenth Amendment, removing the political disabilities of the freedmen, was submitted to the states. Now the Nineteenth Amendment, often called the Susan B. Anthony Amendment in honor of the leader among its original advocates, is be-

fore the state legislatures for ratification (see also I, *American History*). This amendment, when ratified by three-fourths of the states, will put an end to the disfranchisement of women on account of their sex in all elections, both Federal and state.

The Anthony amendment had been adopted by the necessary two-thirds majority in the House of Representatives on Jan. 10, 1918, but failed of adoption in the Senate when put to a vote on Oct. 1 (*A. Y. B.*, 1918, p.

V. STATE AND COUNTY GOVERNMENT

239). It was again put to a vote in the Senate on Feb. 10, 1919, and again failed of adoption. The actual vote was 55 to 29, but making allowance for Senators who were absent and paired, the Senate was divided 63 to 33, one less than the necessary two-thirds majority. Of the Republican Senators, 32 favored and 12 opposed the amendment; of the Democrats, 31 favored and 21 opposed. It was inevitable, therefore, that the amendment should be considered afresh by the new congress, which had been elected in the preceding November, but it was not certain that the new Senate would be more favorable than the old.

The first act of the House of Representatives after the opening of the special session in May was to readopt the equal-suffrage amendment on May 21, by a vote of 304 to 89, a larger majority than before. In the Senate the vote took place on June 4, and resulted in the adoption of the amendment by a majority of 56 to 25. Allowing for absent Senators with pairs, the actual division was 66 to 30. The Republicans divided 40 in favor to nine opposed; the Democrats, 26 in favor and 21 opposed. Thus, despite the support of the President, the success of the measure must be credited to the Republicans. Vice-President Marshall signed the resolution of submission on June 5. The campaign for ratification by the states was at once pushed by the suffrage leaders with great vigor, and by the end of the year the amendment had been ratified by 22 states, as follows:

	Date
Michigan	June 10, 1919
Wisconsin	June 10, 1919
Kansas	June 16, 1919
New York	June 16, 1919
Ohio	June 16, 1919
Illinois	June 17, 1919
Pennsylvania	June 24, 1919
Massachusetts	June 25, 1919
Texas	June 27, 1919
Iowa	July 2, 1919
Missouri	July 2, 1919
Arkansas	July 28, 1919
Montana	July 30, 1919
Nebraska	Aug. 2, 1919
Minnesota	Sept. 8, 1919
New Hampshire	Sept. 10, 1919
Utah	Sept. 30, 1919
California	Nov. 1, 1919
Maine	Nov. 5, 1919
North Dakota	Dec. 1, 1919
South Dakota	Dec. 4, 1919
Colorado	Dec. 12, 1919

The amendment has been rejected by Georgia (both houses, July 24), Alabama (Senate, Sept. 2), and Virginia (House, Sept. 3). Since comparatively few legislatures meet in regular session in the even years, there is no possibility of ratification by three-fourths of the states before the presidential election of 1920 unless special legislative sessions shall be called in several states.

Meanwhile the women have received the Presidential suffrage by act of the legislature in eight more states, namely, Maine, Ohio, Indiana, Wisconsin, Minnesota, Iowa, Missouri, and Tennessee.

Five states also proposed amendments to the state constitutions enfranchising women (see also *Amendments to State Constitutions, infra*), but these cannot be adopted by the people before the presidential election unless special elections shall be called. All are states, however, in which women now possess presidential or primary suffrage.

If the Federal amendment fails of ratification by the necessary number of states prior to the presidential election, women will nevertheless be able to participate in the selection of the President in every state north of the Ohio and west of the Mississippi with the exception of Louisiana and New Mexico. They will also be able to vote for president in three of the northeastern states, Maine, Rhode Island, and New York, and in one southern state, Tennessee. Altogether there are 29 states where women can participate in the choice of President. These states cast 326 out of the 531 votes in the Electoral College. They include all the important doubtful states, so-called, with the exception of New Jersey, Maryland, and Kentucky. It is evident that equal suffrage as a national issue has been settled. Of the non-suffrage states that had ratified the amendment prior to the close of the year, several had not granted presidential suffrage to women, notably Massachusetts and Pennsylvania. But their action indicates that the necessary number of states for ratification will almost certainly be forthcoming at the regular legislative sessions of 1921, if not earlier. Victory for the

STATUS OF POPULAR GOVERNMENT

State ¹	Woman Suffrage	Initiative and Referendum ²	Recall ⁵	Direct Primary ⁸	Presidential Preference Primary
<i>New England</i>					
Me. ...	1919 ²	1908 ³	....	1911	....
N. H. ...	....	....	....	1909	1913
Vt. ....	....	....	....	1915	1915
Mass. ....	....	1918	....	1911	1912
R. I. ...	1917 ²	....	....	....	....
Conn. ....	....	....	....	....	....
<i>Middle Atlantic</i>					
N. Y. ...	1917	....	....	1913	1913
N. J. ....	....	....	....	1911	1911
Pa. ....	....	....	....	1913	1913
<i>East-North-Central</i>					
Ohio ...	1919 ²	1912	....	1908	1913
Ind. ...	1919 ²	....	....	1915	1915
Ill. ...	1913 ²	....	....	1910	1912
Mich. ...	1918	1913	1913 ⁵	1909	1912
Wis. ...	1919 ²	....	....	1903	1911
<i>West-North-Central</i>					
Minn. ...	1919 ²	....	....	1912	1913
Iowa ...	1919 ²	....	....	1907	1913
Mo. ...	1919 ²	1908	....	1907	....
N. D. ...	1917 ²	1914	....	1907	1911
S. D. ...	1918	1893 ³	....	1907	1912
Neb. ...	1917 ²	1912	....	1907	1911
Kan. ...	1912	....	1914 ⁶	1908	....
<i>South Atlantic</i>					
Del. ....	....	....	....	....	....
Md. ....	....	1915 ⁴	....	1910	1912
Va. ....	....	....	....	1912	....
W. Va. ....	....	....	....	1915	....
N. C. ....	....	....	....	....	1915
S. C. ....	....	....	....	P. R. ⁸	....
Ga. ....	....	....	....	P. R. ⁸	....
Fla. ....	....	....	....	1913	....
<i>East-South-Central</i>					
Ky. ....	....	....	....	1912	....
Tenn. ...	1919 ²	....	....	1909	....
Ala. ....	....	....	....	P. R. ⁸	....
Miss. ...	....	1914 ¹⁰	....	1912	....
<i>West-South-Central</i>					
Ark. ...	1917 ⁹	1910	....	P. R. ⁸	....
La. ....	....	....	1914 ⁵	1912	....
Okla. ...	1918	1907	....	1908	....
Tex. ...	1918 ⁹	....	....	P. R. ⁸	....
<i>Mountain</i>					
Mont. ...	1914	1906 ³	....	1912	1912
Idaho ...	1896	1912 ³	1912 ⁵	1909	....
Wy. ...	1869	....	....	1911	....
Col. ...	1893	1910	1912 ⁷	1910	....
N. M. ...	....	1911 ⁴	....	....	....
Ariz. ...	1912	1911	1911 ⁸⁻¹²	1909-12	....
Utah ...	1896	1903 ³	....	....	....
Nev. ...	1914	1904 ⁴⁻¹²	1912	1909	....
<i>Pacific</i>					
Wash. ...	1910	1912 ³	1912 ⁵	1907	....
Ore. ...	1912	1902	1908	1904	1910
Cal. ...	1911	1911	1911	1909	1911
Total ..	29	22	10	42	21

1 States are arranged by geographical divisions according to the classification of the U. S. census. 2 Women may vote for presidential electors and local officers, and for state officers if the office is created by statute. 3 In six of the 21 states possessing the initiative and refer-

women suffragists seems at last definitely in sight.

Revision of State Constitutions.—The progressive movement of a decade ago seems to have nearly reached its end. With the exception of woman suffrage, none of the measures of political reform which engaged the attention of the public prior to the war now arouses popular interest. The initiative and referendum have been adopted in only one state in the last five years, and the demand for that feature of direct government by the people is much less insistent than before the war. No state has adopted the state-wide recall since 1914. The direct primary for the nomination of state officers had extended over almost the entire country a half-dozen years ago and has since made little progress. The tendency, indeed, in recent years has been to consider proposals for restricting the scope of the state-wide primary rather than its further extension. Several states, for example, have considered measures to restore the convention system for the nomination of candidates for offices filled by election in the state at large other than governor and lieutenant-governor, although none has yet abolished the state-wide primary. The presidential-preference primary has made no progress since the campaign of 1916. Some progress has been recently made with less fundamental reforms, notably with absent voting, and several cities have begun to experiment with proportional representation. This reform, indeed, has made rapid progress in Europe. It has become the generally accepted system of representation on the Continent and is making progress in the

end, the initiative applies to statutes but not to constitutional amendments, viz., Maine, South Dakota, Montana, Idaho, Utah, and Washington. 4 The referendum only. 5 In four of the ten states possessing the recall, it does not apply to judges, viz., Michigan, Louisiana, Idaho, and Washington. 6 The recall applies also to appointive officers. 7 The recall applies also to judicial decisions. 8 In those states indicated by P. R. the direct primary is conducted under the rules of the Democratic party, but is not established for all parties by statute. 9 Women may vote at primary elections only. 10 Suspended until official declaration of adoption by state Supreme Court in 1917.

British Isles. Inevitably it will presently attract attention in the United States.

The interest of the people has been directed in recent years rather to problems of efficiency in administration than to strictly political reforms. The improvement of relations between executives and legislatures, particularly the budget system of making appropriations, has held the center of the stage and has made rapid progress in the states (see also *State Administration*, *supra*). The reorganization and consolidation of administrative departments in the interest of economy and efficiency have also received attention. But these are technical subjects better suited for action by representative bodies than directly by the people. It is not surprising that the current has set towards the revision of state constitutions by constitutional conventions rather than by direct popular action. The success of the constitutional convention in Massachusetts despite the distractions of the war (*A. Y. B.*, 1917, pp. 177-180; 1918, pp. 236-239) has encouraged the adoption of the same method elsewhere.

Constitutional conventions were elected in 1919 in two states, Illinois and Nebraska, and will meet early in 1920. The New Hampshire convention, which first convened early in the war and then adjourned until the war should be over, will also meet

early in 1920. Action looking toward the holding of conventions was taken in 1919 in three other states. The Tennessee and Texas legislatures authorized the submission to the people at the general elections of 1920 of the question whether constitutional conventions should be called. In Pennsylvania a special commission on constitutional amendment and revision was created to study comprehensively and in detail the provisions of the present constitution in the light of modern thought and conditions and to report in 1921 with drafts of proposed amendments. If the legislature should then decide to submit to the people the question of calling a convention, there will be reliable information upon which the people can reach a sound decision. Meanwhile, the work of the constitutional conventions, especially that of Illinois, will be closely followed by political reformers in many states.

BIBLIOGRAPHY

- BEARD, C. A., and OGG, F. A.—*National Governments and the World War*. (New York, Macmillan, 1918.)
 Massachusetts Constitutional Convention, *Bulletins* (2 vols.) and *Debates* (4 vols.), 1917-1919. See especially vol. ii of the *Debates*, "The Initiative and Referendum."
 MUNRO, W. B.—*The Government of the United States*. (New York, Macmillan, 1919.)
 "Proposed Revision of the Constitution of Nebraska." (*Nat. Munic. Rev.*, Dec., 1918.)

AMENDMENTS TO STATE CONSTITUTIONS

On the following pages are given brief digests of the constitutional amendments submitted to the people of the various states during the year 1919, with the official returns of the votes thereon, and amendments pending before or passed by the state legislatures for submission in a subsequent year. Many of the important amendments are discussed in detail in other departments of the YEAR BOOK; full references will be found in the Index.

Alabama.—To be submitted in 1920:

Amending Art. XX, Sec. 1-A, providing for the establishment of a state highway system and the issue of bonds therefor not to exceed \$25,000,000.

Amending Sec. 93, prohibiting the state from assuming interest in private or corporate enterprises or lending money or its credit to any individual corporation.

Amending Sec. 194½, exempting discharged soldiers and sailors from payment of poll taxes until September 30, 1923.

Amending the constitution, enabling certain municipalities to levy excess property taxes for certain purposes.

Amending the constitution, authorizing counties to levy a special road tax.

Arkansas.—To be submitted in 1920:

Amending Art. III, Sec. 1, extending the suffrage to women for all elections.

Amending Art. V, Sec. 1, enabling the people to initiate and refer any laws, whether local or general. Initiated.

Amending Art. VII, Sec. 2, increasing the number of Supreme Court judges to seven.

V. STATE AND COUNTY GOVERNMENT

California.—Submitted July 2:

Amending Art. XVI by adding Sec. 2, authorizing a bond issue of \$40,000,000 for state highways. Adopted, 105,333 for, 15,484 against.

To be submitted in 1920:

Amending Art. II, Sec. 1, relating to the right of suffrage.

Amending Art. IV, Sec. 22, relating to the expenditure of public money in state aid.

Amending Art. XIII by adding Sec. 1½, exempting orphan asylums receiving state aid from taxation.

Amending Art. XIII, Sec. 12, providing for the levy of a poll tax on aliens.

Amending Art. XVIII, Sec. 2, relating to the call and composition of constitutional conventions.

The vote on the amendment last cited is to determine whether a convention to draft a new constitution shall be called.

Colorado.—To be submitted in 1920:

Amending Art. IV, Sec. 22, relating to county judges.

Delaware.—Adopted by the legislature of 1919:

Amending Art. II, Sec. 15, relating to the compensation of the members and presiding officers of the General Assembly.

Passed by the legislature of 1919, to be submitted to the legislature of 1921:

Amending Art. IV, Sec. 17, permitting judges of the Superior Court to grant restraining orders and preliminary injunctions in the Court of Chancery during the absence or temporary disability of the chancellor.

Florida.—To be submitted in 1920:

Amending Art. IX, Sec. 6, empowering the legislature to issue bonds for highway building not exceeding five per cent. of total tax assessment of the state.

Georgia.—To be submitted in 1920:

Amending Art. VIII, Sec. 4, authorizing counties to levy local taxes for the support of public schools.

Amending Art. XI, Sec. 1, creating the county of Lanier.

Illinois.—The Constitutional Convention approved by the voters in 1918 (*A. Y. B.*, 1918, p. 241) met on Jan. 6, 1920, composed of one delegate elected on Nov. 4, 1919, from each of the 102 Senatorial districts.

Indiana.—Passed by the legislature of 1919, to be submitted to the legislature of 1921:

Amending Art. II, Sec. 2, relating to the qualifications of voters.

Amending Art. II, Sec. 14, authorizing classification of political subdivisions for the purpose of providing for the registration of voters.

Amending Art. IV, Secs. 4 and 5, relating to the number and apportionment of members of the legislature.

Amending Art. IV by adding Sec. 31, providing for an executive budget.

Amending Art. V, Sec. 14, authorizing the governor to veto separate items in appropriation bills.

Amending Art. VI, Sec. 1, fixing the term of state officers, except judges, at four years.

Amending Art. VI, Sec. 2, fixing the term of county officers at four years.

Amending Art. VII, Sec. 7, authorizing the legislature to prescribe the terms, duties, and salary of the clerk of the Supreme Court.

Amending Art. VII, Sec. 11, fixing the term of prosecuting attorneys at four years.

Amending Art. VII, Sec. 21, authorizing the legislature to prescribe the qualifications of persons admitted to the practice of law.

Amending Art. VIII, Sec. 8, relating to the office of state superintendent of public instruction.

Amending Art. X, Sec. 1, providing for the classification of property for purposes of taxation.

Amending Art. X by adding Sec. 8, authorizing the legislature to levy a tax on incomes.

Amending Art. XII, Sec. 1, removing race disqualifications for the militia.

Amending Art. XV, Sec. 2, prohibiting the legislature from creating any office of longer tenure than four years or increasing the tenure or salary of any officer during the term for which he was elected or appointed.

Amending Art. XVI, Secs. 1 and 2, providing for the ratification of amendments to the constitution by a majority of those voting thereon and providing for a separate vote on each amendment submitted.

Iowa.—Passed by the legislature of 1919, to be submitted to the legislature of 1921:

Amending Art. II, Sec. 1, extending the suffrage to women.

Kansas.—To be submitted in 1920:

Amending Art. XI, Secs. 1 and 2, relating to the classification of property for purposes of taxation and the exemption of personal property therefrom.

Amending Art. XI, Sec. 8, authorizing the state to extend aid to counties for highway construction.

Amending Art. XV, Sec. 11, authorizing the legislature to provide a fund for the purchase, improvement, and sale of lands for agricultural purposes with reasonable preferences for discharged soldiers and sailors.

Kentucky.—Submitted Nov. 4:

Amending the constitution, prohibiting the manufacture or sale of intoxicating liquors after June 30, 1920. Adopted.

V. STATE AND COUNTY GOVERNMENT

Amending the constitution, authorizing the legislature to provide for the removal of peace officers for neglect of duty in cases of lynching. Adopted.

Maine.—Submitted Sept. 8:

Amending Art. II, Sec. 1, providing for the retention of voting residence for three months after removal. Adopted, 22,024 for, 6,751 against.

Amending Art. VII, Secs. 1 to 5, providing for the appointment of National Guard officers by the governor. Adopted, 15,826 for, 11,020 against.

Amending Art. IX, Sec. 14, increasing the state debt limit. Adopted, 21,542 for, 7,080 against.

Amending Art. IX, Secs. 14 and 17, increasing the amount of bonds that may be issued for highway building and providing for the building of bridges. Adopted, 26,228 for, 5,125 against.

Amending Art. IX, Sec. 14, and adding Sec. 18, providing for a bond issue for building public wharves and establishing adequate port facilities. Adopted, 22,637 for, 6,777 against.

To be submitted in 1920:

Amending the constitution, authorizing towns to have more than one voting place.

Amending the constitution, authorizing the legislature to issue bonds to provide a bonus for discharged soldiers and sailors.

Amending the constitution, authorizing the legislature to levy a tax on incomes.

Massachusetts.—A new text of the constitution, submitted by the Constitutional Convention and constituting a rearrangement of the previous instrument, submitted on Nov. 4 was ratified by a vote of 263,359 for to 64,978 against.

Michigan.—Submitted April 7:

Amending Art. X, Sec. 10, authorizing the state to issue bonds for highway building not to exceed \$50,000,000. Adopted, 558,572 for, 225,239 against.

Amending Art. XVI Sec. 3, prohibiting alteration of the salaries of public officers, except judges, during their term of office. Rejected, 313,539 for, 418,778 against.

Amending Art. XVI, Sec. 11, repealing the prohibition of the manufacture and sale of wines and beer. Initiated. Rejected, 322,603 for, 530,123 against.

To be submitted in 1920:

Amending Art. III, Sec. 1, relating to the qualifications of aliens entitled to vote.

Amending Art. V, Sec. 29, empowering the legislature to enact laws relative to the hours and conditions of labor.

Amending Art. VI, Sec. 21, authorizing the legislature to fix the compensation of certain state officers.

Minnesota.—To be submitted in 1920:

Amending Art. VI, Sec. 7, fixing the term of the judge of probate court at four years.

Amending Art. IX, Sec. 1, relating to the exemption of personal property from taxation and providing for taxes on incomes, privileges, and occupations.

Adding Art. XVI, providing for a state trunk highway system and the financing thereof by the taxation of motor vehicles, the issue of bonds, and otherwise.

Missouri.—To be submitted in 1920:

Amending the constitution, increasing the number of Supreme Court judges to nine.

Amending the constitution, increasing the number of judges of the St. Louis Court of Appeals to six.

Amending Art. IV, Sec. 16, relating to the compensation of members of the legislature.

Amending Art. IV, Sec. 44, authorizing the issue of \$1,000,000 in bonds to create a soldiers' land-settlement fund.

Amending Art. IV, by adding Sec. 44a, authorizing the legislature to issue bonds for highway building.

Amending Art. IV, Sec. 47, authorizing the pensioning of the deserving blind and providing funds therefor by taxation.

Amending Art. VIII, Sec. 11, providing for absent voting of qualified electors absent on military service.

Amending Art. IX, Secs. 16 and 17, relating to the framing and adoption of charters for self-government by cities of the first class.

Amending Art. X, Sec. 11, relating to the levy of taxes for local purposes, including schools and public buildings, under certain limitations.

Amending Art. X, Sec. 12, relating to the debt limits of political corporations or subdivisions.

Amending Art. X, Sec. 12a, extending the debt limit of certain cities to acquire water, electric, and ice plants.

Amending Art. X by adding Sec. 33, authorizing the levy of special taxes for road purposes on property within any road district.

Montana.—To be submitted in 1920:

Amending Art. VII, Sec. 20, authorizing the legislature to reorganize the state administration and to create a Board of Administration and a Board of Examiners.

Amending Art. XI, Sec. 5, relating to the permanent public school fund.

Amending Art. XII, Sec. 15, creating a State Tax Commission and county boards of equalization.

Nebraska.—The Constitutional Convention approved by the voters in 1918 (*A. Y. B.*, 1918, p. 243) was in session at the end of the year.

New Mexico.—Submitted Sept. 16:

Amending Art. VII, by adding Sec. 6, providing for absent voting of qualified electors in military or naval service. Adopted, 6,742 for, 5,069 against.

Amending Art. IX, Sec. 8, authorizing the legislature to issue bonds for high-

V. STATE AND COUNTY GOVERNMENT

way building. Rejected, 1,731 for, 9,907 against.

Amending Art. XII, Sec. 13, and Art. XIV, Sec. 13, creating a Board of Control. Rejected, 927 for, 10,702 against.

New York.—Submitted Nov. 4:

Amending Art. I, Sec. 7, providing for the drainage of swamp lands and the assessment of cost against property benefited thereby. Adopted, 718,150 for, 590,134 against.

Amending Art. II by adding Sec. 1a, providing for absent voting. Adopted, 787,076 for, 535,703 against.

Amending Art. III, Sec. 6, increasing the salary of members of the legislature. Rejected, 625,881 for, 679,243 against.

Amending Art. VI, Sec. 7, increasing the salaries of judges of the Court of Appeals. Rejected, 607,600 for, 690,158 against.

To be submitted in 1920:

Amending Art. VII, Secs. 2, 4, 11, and 12, relating to debts contracted by the state.

Passed by the legislature of 1919, to be submitted to the legislature of 1921:

Amending Art. II, Sec. 1, prescribing a literacy test for voters.

Amending Art. V, Sec. 9, relating to the preferential employment in the civil service of discharged soldiers and sailors.

North Carolina.—To be submitted in 1920:

Amending Art. V, Sec. 1, authorizing the state to levy a capitation tax not exceeding \$2 and municipalities a capitation tax not exceeding \$1.

Amending Art. V, Sec. 3, limiting the rate of income tax to six per cent. providing exemptions, and authorizing taxation of income from solvent credits.

Amending Art. V, Sec. 6, limiting the rate of state and county property tax except for special county purposes approved by the legislature.

Amending Art. VI, Sec. 2, relating to the residence qualification of voters.

Amending Art. VI, Sec. 4, removing the requirement of payment of poll tax before voting.

The three first amendments and the two last are to be considered and submitted as single amendments.

North Dakota.—To be submitted in 1920:

Amending Sec. 121, extending the suffrage to women.

Amending Sec. 161, relating to state lands.

Amending Sec. 162, relating to the investment of school funds.

Amending Sec. 183, fixing the debt limit of political subdivisions.

Amending Sec. 215, changing the name of the State Reform School to State Training School.

Adding a section providing for the recall of all elective officers.

Ohio.—Submitted Nov. 4:

Amending Art. XII, Sec. 2, providing for the classification of property for purposes of taxation. Rejected, 439,897 for, 517,245 against.

Amending Art. XV, Sec. 9, repealing state wide prohibition. Rejected, 454,933 for, 496,786 against.

Amending Art. XV, Sec. 9-1, declaring that no beverage containing 2.75 per cent. or less of alcohol by weight shall be deemed an intoxicating liquor. Rejected, 474,907 for, 504,688 against.

At the same election a referred resolution of the legislature ratifying the Federal prohibition amendment was rejected by a vote of 499,971 for to 500,450 against; and a referred statute providing for state-wide prohibition and its enforcement was rejected by a vote of 474,078 for to 500,812 against.

The amendment first cited above was a duplicate of an amendment submitted in 1918 and approved by a majority of the voters, but declared invalid by the State Supreme Court on Jan. 28, 1919, on the ground that its provisions were in conflict with another tax amendment submitted at the same election and adopted by a larger vote.

Oklahoma.—Submitted May 10:

Amending Art. X by adding Sec. 25a, authorizing the legislature to issue bonds for highway building. Rejected, 69,917 for, 151,327 against.

To be submitted in 1920:

Amending Art. V, Sec. 21, relating to the length of legislative sessions.

Amending Art. XIIa relating to public service corporations in more than one county. Initiated.

Amending Art. XIX, Sec. 3, relating to certain classes of insurance organizations not conducted for profit.

Oregon.—Submitted June 3:

Amending Art. V, Secs. 1 and 8, providing for the election of a lieutenant-governor. Rejected, 32,653 for, 46,861 against.

Amending Art. XI by adding Sec. 7a, authorizing the issue of bonds not exceeding \$5,000,000 for the promotion of reconstruction, reclamation, and land-settlement projects, with particular reference to discharged soldiers and sailors. Rejected, 39,130 for, 40,580 against.

Amending Art. XI, Sec. 10, fixing the limit of county indebtedness for highway building at six per cent. of the assessed valuation. Adopted, 49,728 for, 33,561 against.

Adding Art. XIb, authorizing the pay-

V. STATE AND COUNTY GOVERNMENT

ment by the state of irrigation- and drainage-district bond interest for the first five years. Adopted, 43,010 for, 35,945 against.

Amending Art. XIV, Sec. 3, relating to the location of an industrial and reconstruction hospital. Rejected, 38,204 for, 40,707 against.

To be submitted in 1920:

Amending Art. I, Sec. 18, extending eminent domain of roads and ways.

Amending Art. II, Sec. 2, providing for compulsory registration and voting.

Amending Art. IV, Sec. 29, relating to the length of legislative sessions and the payment of legislators.

Pennsylvania.—To be submitted in 1920:

Amending Art. IX, Sec. 8, permitting the city of Philadelphia to increase its indebtedness under certain conditions.

Amending Art. XVI, Sec. 11, empowering the legislature to provide for the incorporation of banks and trust companies.

Passed by the legislature of 1919, to be submitted to the legislature of 1921:

Amending Art. III, Sec. 6, relating to the amendment of statutes.

Amending Art. III by adding Sec. 34, authorizing the legislature to classify political subdivisions according to population.

Amending Art. V, Sec. 6, to consolidate the courts of common pleas of Philadelphia and Alleghany County.

Amending Art. VIII, Sec. 1, extending the suffrage to women.

Amending Art. IX, Sec. 11, prohibiting cities from becoming stockholders in corporations.

Amending Art. XV, Sec. 1, providing for the referendum in city laws.

The legislature of 1919 created a commission of 25 members, appointed by the governor, which is to report to the legislature of 1921 proposed amendments to the constitution or a general revision.

South Dakota.—To be submitted in 1920:

Amending Art. XIV, Sec. 4, creating a Board of Control.

Amending Art. XXI, Sec. 2, relating to the compensation of state officers.

Texas.—Submitted May 24:

Amending Art. III, Sec. 50, authorizing the state to assist heads of families to purchase or improve homes. Rejected, 150,813 for, 151,782 against.

Amending Art. IV, Sec. 5, increasing the salary of the Governor to \$4,000. Rejected, 108,803 for, 195,570 against.

Amending Art. VI, Sec. 2, extending the suffrage to women. Rejected, 140,911 for, 165,940 against.

Amending Art. XVI by adding Sec. 16,

prohibiting the manufacture and sale of intoxicants. Adopted, 158,982 for, 138,907 against.

Submitted Nov. 4:

Amending Art. III, Sec. 49, authorizing the legislature to issue bonds not exceeding \$75,000,000 for highway building. Rejected, 29,844 for, 84,518 against.

Amending Art. III, Sec. 51, authorizing the legislature to grant pensions to Confederate soldiers and their widows. Rejected, 56,886 for, 59,701 against.

Amending Art. VII, Secs. 10-15, fixing the constitutional status of the University of Texas and other state educational institutions, and separating from the former the Agricultural and Mechanical College of Texas. Rejected, 37,560 for, 76,422 against.

Amending Art. VIII, Sec. 9, increasing the limit of taxation of political subdivisions for public improvement, 30,214 for, 83,285 against.

Amending Art. XVI, authorizing the city and county of Galveston to issue bonds for grade-raising purposes. Rejected, 55,600 for, 56,911 against.

Amending Art. XVI by adding Sec. 60, permitting convicts to share in the net profits of prison labor. Rejected, 42,358 for, 70,901 against.

At the same election a proposal of the legislature for the call of a constitutional convention was rejected by a vote of 23,549 for to 71,376 against.

To be submitted in 1920:

Amending Art. VII, Sec. 3, providing for taxation by school districts.

Amending Art. XI, Sec. 4, increasing the limit of taxation of municipalities.

Amending Art. XVI by adding Sec. 60, abolishing the fee system for the compensation of public officials.

Utah.—To be submitted in 1920:

Amending Art. XI, Sec. 5, relating to municipal corporations.

Amending Art. XIII, Sec. 7, relating to the rate of taxation for state purposes.

Amending Art. XIV, Sec. 1, increasing the state debt limit to two per cent. of the taxable wealth.

Amending Art. XVI, Sec. 5, relating to rights of action to recover damages for injuries resulting in death.

Vermont.—A commission has been appointed by the governor to prepare proposals for amendments to the constitution for submission to the legislature of 1921.

Virginia.—Passed by the legislature of 1918, to be submitted to the legislature of 1920:

Amending Art. II, Sec. 32, exempting expert municipal employees from residence qualification for eligibility to public employment.

Amending Art. VIII, Sec. 117, relating to the framing and adoption of charters of cities and towns.

Amending Art. IX, Sec. 133, limiting

V. STATE AND COUNTY GOVERNMENT

the number of school trustees to three for each district, and permitting women to serve as school trustees.

Amending Art. IX, Sec. 136, authorizing the legislature to fix the annual rate of taxation for school purposes.

Amending Sec. 138, empowering the legislature to provide for the compulsory education of children of school age.

Amending Sec. 184, authorizing the state to contract debt for the construction of public roads.

Washington.—To be submitted in 1920:

Amending Art. I, Sec. 16, relating to the power of eminent domain.

Amending Art. III, relating to the salaries of state officials.

West Virginia.—To be submitted in 1920:

Amending Art. VI, Secs. 32 and 33, increasing the length of sessions of the legislature to 60 days and the compensation of members to \$500 per year.

Amending the constitution, providing for a system of state roads connecting the county seats and for a bond issue therefor not to exceed \$50,000,000.

Wisconsin.—To be submitted in 1920:

Amending Art. IV, Sec. 21, relating to the compensation of members of the legislature.

Amending Art. VII, Secs. 6 and 7, prescribing the number of circuit judges to a circuit.

Passed by the legislature of 1919, to be submitted to the legislature of 1921:

Amending the constitution, making sheriffs eligible to succeed themselves.

Amending the constitution, authorizing five-sixths of a jury to return a verdict in jury trials.

Amending the constitution, increasing the compensation of the governor.

Amending the constitution, increasing the compensation of the lieutenant-governor.

Amending the constitution, providing for municipal home rule.

Amending the constitution, authorizing municipalities to contract indebtedness to acquire public utilities.

Amending the constitution, authorizing the state to contract indebtedness for highway building.

Amending the constitution, authorizing the state to contract indebtedness to promote land settlement of discharged soldiers and sailors.

Wyoming.—To be submitted in 1920:

Amending Art. XV, Sec. 6, limiting the rate of taxation of municipalities to 15 mills.

Amending Art. XVI, Sec. 1, authorizing the state to contract indebtedness for highway building.

Amending Art. XVI, Sec. 3, fixing the debt limit of counties at two per cent. of the assessed valuation except for highway building.

Amending Art. XVI, Sec. 2, limiting the amount of indebtedness the state may contract for highway building to two per cent. of the assessed valuation of property, and the rate of interest thereon to five per cent.

Amending Art. XVI, Sec. 5, fixing the debt limit of municipalities at two per cent. of the valuation of property, except for water-supply, sewerage, and school purposes.

COUNTY GOVERNMENT

CLINTON ROGERS WOODRUFF

County Home Rule in Maryland.—At the election in November, 1915, the constitution of Maryland was amended by the adoption of an article providing that the city of Baltimore or any county of the state might obtain a home-rule charter by complying with the terms of the article and the supplementary act of the legislature. In this article very little is left to the discretion of the legislature. Sec. 2 of the amendment requires the General Assembly to provide by public law a grant of "express powers" for any county or counties that may adopt a charter under this article. Such a law was enacted on April 10, 1918, to take effect on June 1, 1918. Broad and general powers, both legislative and administrative, are granted with

respect to most subjects of local concern and interest. In at least three counties an effort is being made to formulate public opinion favorable to the new system. The movement is more advanced in Baltimore County than in any other.

County Government in North Carolina.—North Carolina is the one state where the county problem has been taken seriously. In some ways its counties lead the nation, notably in the scientific and up-to-date work in public-health organization under the State Board of Health. Under the leadership of Dr. E. C. Branson of the State University the people of the state are getting a vision of what county government means and may be made to mean as a great agency of

V. STATE AND COUNTY GOVERNMENT

social welfare generally. Like leaders in every other state, Dr. Branson and his coworkers in the North Carolina Club have long since found that the complex, antiquated machinery of county government is an obstruction to the better ideals of county citizenship and public service. The *Year Book* of the Club is an important contribution to the scanty but growing literature on county government and is of nearly as great interest beyond the borders of North Carolina as within the state. In the course of 27 short articles by different writers it covers most of the live and modern aspects of the county problem. Typical topics are: a township tax-list study, the evolution of county health work, bridge building in North Carolina, county homes and outside relief in North Carolina, and the jungle of county government. Counties in every state are in need of just such an examination as they are getting in North Carolina. In this connection we may refer to the recent publication of a book on *County Administration* by Chester C. Maxey (Macmillan).

County Classification in Pennsylvania.—The Pennsylvania legislature at its 1919 session passed a law dividing the counties of the state into eight classes, according to population, for uniformity in legislative enactments. The eight divisions of population are (1) 1,500,000 or over; (2) 800,000 to 1,500,000; (3) 250,000 to 800,000; (4) 150,000 to 250,000; (5) 100,000 to 150,000; (6) 50,000 to 100,000; (7) 20,000 to 50,000; (8) less than 20,000. The classification is to be determined from time to time by

reference to the decennial Federal census. Another act gave to the county controllers the right to form a state association.

City-County Consolidation.—In Ohio the consolidation of city and county is a pressing question in which the Cleveland Civic League has taken a leading part. Its secretary, C. A. Dykstra, contributed an article on the subject to the August issue of the *National Municipal Review*. It is likewise an issue in Portland, Ore., where a constitutional amendment dealing with the subject was defeated. The Tax Association of Alameda County (Oakland, Cal.) published a bulletin on the subject in May. The Supreme Court of Colorado has again reaffirmed the Rush amendment to the state constitution which makes of one government the city of Denver and the county of Arapahoe. The Dallas, Tex., *News* published a series of articles calling attention to the antiquated county system in the state and the need for reform. A significant report on county government with a plan for an up-to-date county government has been published for Nassau County, New York, by a special commission which was described in the July issue of the *National Municipal Review*. A movement has been inaugurated in Michigan to secure a vote in November, 1920, on a constitutional amendment giving the legislature power to provide machinery whereby counties having 150,000 population and upwards may adopt by popular vote the commission form of government. The question is also under discussion in Montreal.

VI. MUNICIPAL GOVERNMENT

CLINTON ROGERS WOODRUFF

CHARTERS

Philadelphia.—In one of the most concise documents of its kind, Philadelphia has secured a new charter. Foremost among its provisions is that of a small, unicameral Council of 21 members, replacing an unwieldy bicameral body consisting of 48 select councilmen, one from each ward, and 96 common councilmen. The basis of representation in the new Council is the homogeneous Senatorial district, of which there are eight in the city; thus the evils of petty ward politics are largely eliminated, and the disadvantages of electing the councilmen on a general ticket in a city of Philadelphia's size are avoided. Each Senatorial district is entitled to one councilman and one additional for each 20,000 assessed voters or majority fraction thereof. A very interesting provision is that "if at any time hereafter the women of the Commonwealth shall be given the right to vote, the unit of representation shall be 40,000 assessed voters instead of 20,000"; under this ratio the new Council shall continue to contain 21 members. Closely linked with the improvement in the form of the city legislature are provisions for paying each councilman an annual salary of \$5,000 and prohibiting dual office-holding, an evil that has blighted Philadelphia politics for years. Other important clauses embody model civil-service provisions and the prohibition of political activity or political contributions on the part of the police and the firemen. Teeth are provided for the law by permitting any taxpayer to bring proceedings to have the employment of any offender declared illegal and to restrain the payment of compensation to him. The ballot is shortened by making the city solicitor appointive instead of elective; the Bureau of Health is raised to the dignity of a

department; the Bureau of Charities is merged in a new Department of Public Welfare; and a purchasing agent supplants the Department of Supplies.

Another long step in advance is represented by the financial provisions of the charter. The mayor is required to submit to the Council by Oct. 15 of each year a statement showing the estimated receipts, fixed liabilities, and proposed expenditures of the city for the ensuing year. This statement must be considered in open session by the Council, which, not later than Dec. 15, shall pass an ordinance setting forth the financial programme for the ensuing year, at the same time fixing a tax rate that will produce sufficient revenue, with the funds from other sources, to meet the fixed liabilities and the current expenditures set forth in the Council's programme. The limit set in this programme cannot be exceeded, and the city comptroller is forbidden to countersign any warrant pertaining to any of the appropriations until the Council shall have first passed all appropriations necessary for the expenses of the current year.

Commission Government.—The following is a list of the cities and towns adopting the commission-government plan since the list published in the YEAR BOOK for 1918 (p. 248):

Watervliet, N. Y. (15,074); Olney, Ill. (5,011); Muskegon, Mich. (24,062); Portland, Mich. (1,832); Maryville, Mo.; Webster Grove, Mo.; Georgetown, Ky. (4,533); Monroe, La. (10,209); Nowata, Okla. (3,672).

The City-Manager Plan.—The following is a list of cities adopting the city-manager plan since the list published in the YEAR BOOK for 1918 (p. 249), with the names of the city managers so far as their appointments have been announced:

VI. MUNICIPAL GOVERNMENT

	Manager	Population,
		1910
Watertown, N. Y.....		26,730
Lynchburg, Va.....		29,494
Newport News, Va.....		20,205
Petersburg, Va.....		24,127
Suffolk, Va.....		7,008
Beckley, W. Va.....		2,161
Tallahassee, Fla.....		5,018
Gastonia, N. C.....		5,759
Griffin, Ga.....	E. P. Bridges.	7,478
Lapeer, Mich.....	Ray S. Blinn.	3,946
Muskegon, Mich.....		24,062
Dickinson, N. D.....		3,678
Hays, Kan.....	L. C. Manning	1,961
McCracken, Kan.....		371
Alliance, Neb.....		3,105
Alcoa, Tenn.....		
McAlester, Okla.....		12,954
Norman, Okla.....	W. R. Gates.	3,724
Sallisaw, Okla.....		2,479
Walters, Okla.....		1,377
Eastland, Tex.....	Walter Lander	855
Electra, Tex.....	W. H. Larson.	640
Lufkin, Tex.....	M. E. Mitchell	2,749
Ranger, Tex.....	M. A. Turner.	6,000
Stamford, Tex.....	E. A. Burro.	3,902
Terrell, Tex.....	J. P. Kittrell.	7,050
Redding, Cal.....	E. A. Rolison.	3,572
San Anselmo, Cal.....	C. A. Macomber	1,531
Gary, Fla.....	J. A. O'Henry.	500
Wichita, Kan.....		52,450
El Dorado, Kan.....		3,129
Augusta, Kan.....		1,235
Portland, Mich.....	F. L. Jenkins.	1,832
St. Johns, Mich.....	A. D. Smith.	3,154
Columbus, Mont.....	Fred Fahrion.	521
Maryville, Mo.....	W. O. Garrett.	4,762

A committee of 15 appointed in Cleveland some time ago to study the charter and make recommendations for its amendment has presented two reports. The majority report, signed by seven members, provides for what is known as the "straight city-manager form of municipal government." The main features are:

(1) A city council of from 15 to 25 members elected on a basis of proportional representation.

(2) A president of the city council elected by the city council to preside over their meetings and to represent the city formally as mayor.

(3) A city manager chosen by the city council and serving during their pleasure, the active head of the administration of city government.

(4) Vesting in the city manager the power to appoint all department heads with the exception of law director and city auditor.

(5) Division of the city into a few large districts from each of which would be elected five to nine of the councilmen.

The minority report, signed by five, provides for a city manager appointed by the mayor without radical change in the present form of government.

The growing interest in the city-manager plan has created a demand

for professional aid in charter drafting, publicity methods, and the conduct of nonpartisan campaigns, which the American City Bureau of New York is organized to supply. Harrison Gray Otis, secretary of the City Managers' Association, formerly city manager of Auburn, Me., has been retained by the Bureau, and Lucius E. Wilson, who conducted the campaign for the introduction of the plan into Dayton, is at the head of the field staff. A clearing house for city managers will be organized in connection with this service to help cities to obtain executives.

The City Managers' Association remains unchanged as to purpose and organization. Its 1919 meeting was held in Indianapolis, Oct. 29,-31, in conjunction with the Commercial Secretaries Association. Harry H. Freeman, city manager of Kalamazoo, was elected president, and Harrison Gray Otis of New York City was reelected secretary. The fifth "Year Book" of the Association contains an interesting digest of facts concerning city-manager government. It reports 128 city managers, 63 of which are members of the Association. Of these managers, 48 per cent. were engineers and 25 per cent. were business men. Seventy-seven per cent. had previously been in public service, 40 per cent. as engineers or connected with public utilities. Thirty-one per cent. had received training in colleges or bureaus of municipal research. Thirty-five per cent. were non-resident when appointed. Fourteen are serving their second city as managers, and four are serving their third city. There have been 229 men appointed as city managers, 101 of which no longer hold such positions. Of the present 128 city managers, 44 have served two years or over, 39 have served one year, and 45 less than one year. As to salaries, 19 are receiving \$5,000 and over, 30 receive \$3,000 to \$5,000, 23 receive \$2,000 to \$3,000, and 39 receive under \$2,000. Classified according to the size of the city, the average salary paid by cities of over 50,000 population is \$6,322; by those of 20,000 to 50,000, \$5,116; by those between 10,000 and 20,000, \$3,016; by those between 5,000 and 10,000, \$2,220; and by those under 5,000 \$1,963.

About half of the "achievement reports" in the "Year Book" emphasize the fact that the expenditures have been decreased. This probably is the feature that would appeal most to the majority of taxpayers and is also one of the benefits most easily given definite expression. However, in the "foreword" of the "Year Book," is the statement:

Government cannot be measured by the tax rate. Efficiency may allow reduced taxes; it may demand increased taxes; it may even dictate a deficit, in emergency, rather than endanger public safety. Real success lies in selling the most good government to satisfied taxpayers.

State laws permitting cities to adopt the commission-manager plan have been adopted in Massachusetts, New York, Virginia, Ohio, Iowa, Kansas, Idaho, Montana, North Dakota, North Carolina, Wisconsin, Louisiana, and South Carolina.

Home Rule.—The Wisconsin legislature in 1919 passed through its first stage a constitutional amendment providing for municipal home rule. The Utah legislature also passed home-rule amendments which will be submitted to the people at the next election. The Pennsylvania legislature passed two amendments relating to home rule

which will have to be submitted to another session. The Missouri legislature passed an amendment giving Kansas City the right to frame its own government, which will be submitted to the voters in 1920. Bills were introduced in the Illinois legislature providing for home rule over public utilities for cities and villages, but they were defeated in the Senate committee. The movement in Kansas has been postponed because the constitution of that state contains a provision restricting the number of constitutional amendments that may be submitted at any one time to three, and the home-rule amendment failed to get a place on the ballot. The New York home-rule bill, supported by the City Club and the Citizens' Union of New York, was reported favorably to the Assembly but too late to be passed. The legislature's usual crop of objectional bills infringing upon the home-rule rights of New York city were vetoed either by the mayor or the governor.

By a decision of the Colorado Supreme Court in the telephone rate case handed down in January, the consolidated city and county of Denver under Art. 20 of the constitution is confirmed in its supremacy in matters of local and municipal concern.

FINANCE, EFFICIENCY, AND RESEARCH

Fiscal Problems of Cities.—The question of additional municipal revenue is everywhere a pressing one, due to increasing costs, to the elimination of liquor licenses, and to the increased functions imposed upon the city and the state. The following is a bibliography of the more important reports on this subject:

HAIG, Robert Murray.—"New Sources of City Revenue." (*Nat. Munic. Rev.*, iv, 1915, p. 594.)

HORMELL, Owen C.—"Sources of Municipal Revenue in Maine." (Bowdoin College, 1919.)

Massachusetts Special Commission on Taxation.—*Report*, Part 8, "Additional Sources of Revenue." (Boston, Wright & Potter Printing Co., 1916.)

New York City Commission on New Sources of City Revenue.—"Report Submitted to the Mayor, Chairman of the Board of Estimate and Apportionment, Jan. 11, 1913. (New York, M. B. Brown, 1913.)

POWELL, Fred W.—"The Problem of Additional Sources of City Revenue." (*Am. City*, January, 1917, p. 31.)

Rhode Island Board of Tax Commissioners.—"Fourth Annual Report, Jan. 1, 1916" (p. 41). (Providence, E. L. Freeman Co., 1916.)

Although there is a general feeling that real estate is already bearing its full share of the burden, there is a strong movement in favor of raising the assessment of real estate and the establishment of the whole system on a more systematic basis. An important publication on this subject has been written for the National Municipal League by Lawson Purdy. The question of a municipal income tax is being considered in some cities, but so far has not been resorted to by any.

The fiscal situation was serious before the war. It has been greatly aggravated by the fact that, through the voluntary coöperation of state and local officials with the Capital Issues Committee (*A. Y. B.*, 1918, p. 254), new municipal financing in 1918 was cut in half. The same principles ap-

plied on which the Government's whole campaign of war thrift was based. Cities and states, like individuals, were asked to do without everything that was not vitally necessary in order that the investment market might absorb more readily the successive issues of Liberty bonds and in order that labor and materials might be released for the use of the Government.

Municipal Research.—A new phase of the research movement was initiated at the meeting of the Governmental Research Conference (A. Y. B., 1918, p. 251) in Chicago on June 23 and 24. The Conference is a loose organization undertaking little more than to hold frequent meetings for the purpose of discussion and to disseminate monthly information as to current activities. The proposal of a more effective national organization was endorsed and the first steps were taken for its establishment. The organization, however, according to its secretary, is not to be a mere association of local bureaus. It is to have a separate and independent existence. Its purposes will be to stimulate more effective government wherever the need, to give national backing to the local bureaus, and to aid in the launching of bureaus in every field of government, national, state, county, city, or other. By making more mobile the expert and technical experience available, it will cut the costs of local operation. It will also formulate a nation-wide bureau policy, which was not feasible so long as the bureaus were wholly detached. Divergent as are the needs and opportunities in different places, the discussions in Chicago demonstrated that the elements of such a national programme have already been developed. It will stand for the promotion of a system of government built upon principles proved by experience, such as a simple, responsible, administrative organization, financial planning and control, informative accounting, systematic purchasing, and standardization, so far as practicable, of salaries, grades, and methods. A committee consisting of Charles A. Beard (chairman) of New York, Frederick P. Gruenberg of Philadelphia, F. L. Olson of Minneapolis, and Lent D. Upson of Detroit was chosen to develop these plans.

An interesting experiment in municipal research and in the checking up of city administration may be inaugurated in Philadelphia when the terms of the will of Thomas Skelton Harrison are carried out. A fund, estimated at about \$500,000, is to be administered for the investigation of municipal affairs and the maintenance of a high standard of honesty and efficiency in the performance of civic functions. Specifically the trustees are charged among other things to secure honest and impartial enforcement of the terms of all contracts made by the city providing for the furnishing by contracts of labor or for the erection of buildings, the construction of public improvements, the cleaning of streets, the removal of refuse, including the proper method of carting ashes and garbage, etc., the furnishing of water, gas, electricity, or transportation facilities, or the performance of any other work, or the furnishing of any other supplies of any kind or nature; to investigate municipal affairs in Philadelphia and obtain and disseminate information in relation thereto to aid the officers of departments of the city by advice as to the methods of municipal work, to frame proper legislation in regard thereto and to aid in the inauguration or conduct of movements for municipal reform, and generally for such purposes as will contribute toward the improvement of the governmental conditions of the city; and to further the immediate adoption by the city of Philadelphia of a wise, clear, and accurate system of book-keeping and accounting, including as a feature thereof the frequent publication of lucid statements as to the financial condition. The will provides for a board of seven trustees, one member being selected by each of the following institutions: Franklin Institute, Law Association, College of Physicians, City Club of Philadelphia, Board of Trade, the University of Pennsylvania, and the Board of City Trusts. The income from the Harrison fund will not be sufficient to support adequately all of the work indicated for the trustees, but by a proper coordination of its activities with those of other agencies the foundation may be made an instrument of value to the city.

VI. MUNICIPAL GOVERNMENT

Surveys.—The following is a list of the surveys undertaken during 1918 and 1919 by the New York Bureau of Municipal Research: general survey of the state of Delaware; charities survey, Indianapolis; general survey, Montreal; investigation of the pension problem, New Jersey; survey of Episcopal missions in the Province of the Northwest; police survey, Schenectady, N. Y.; financial survey, Troy, N. Y.; general health and housing sur-

veys, Wilmington, Del.; accounting installation, Bethlehem, Pa.; preliminary survey, Boston; special studies of the tax inquiry, New York State; police record system installation, Indianapolis; financial survey, East St. Louis, Ill.; budget study and tax-inquiry study, Yonkers, N. Y.; the pedagogical side of education, Dunkirk, N. Y.; police and fire, St. Louis; general survey of education, Newark, N. J.

CITY PLANNING

City-Planning Reports.—Comprehensive city plans or civic-improvement programmes have been proposed in Auburn, Me., East St. Louis, Ill., Spokane, Wash., Springfield, Ill., and Texarkana, Tex., but so far plan reports have not been issued. Three general plan reports of importance, those of Akron, Ohio, Stillwater, Minn., and Syracuse, N. Y., have been published in separate form during the year. Baltimore's report in connection with a recent addition and the Portland, Ore., zoning report may also be considered in the class of general plans.

In the Akron report, prepared by John Nolen, there are reproduced a series of interesting detailed data maps, forming a civic survey. Housing receives special attention, since the well known and excellent housing developments of the Goodyear and Firestone companies have set a high standard for the city. The Stillwater plan submitted by Morell and Nichols of Minneapolis notes that the town has an exceptionally beautiful location. A gridiron plan has been imposed on a very uneven topography, but it is hoped that a replatting of undeveloped lands may preclude a continuance of the mistake. Parks to preserve the sweeping views of bluff and river are proposed, and waterfront development is briefly touched on, both in respect to preservation of natural beauty and to commercial uses. The report is preliminary in character, designed to stimulate the city to appreciate its civic possibilities. The Syracuse City Planning Commission issued its comprehensive report after various interruptions due to the war. Street-system improvements are noted as re-

tarded by the war but as again under way. A better use of the old State Canal lands is recommended, since these form a serious obstacle in the development of the city. The proposals here should be compared with those in Schenectady, where a city boulevard is proposed for an abandoned canal site. Baltimore's report on the development of the territory added in 1918 was published in the *Baltimore Municipal Journal* for May 9. A street plan is outlined, zoning is mentioned as being further studied, parks are discussed with reference to the Olmstead plan of 1904, and transportation and harbor development are given particular consideration.

Intensive Studies of Limited Areas.

—A thorough report is published by the Boston City Planning Board, entitled, "The North End: A Survey and a Comprehensive Plan." It is similar in scope to the East Boston study and with it forms a plan for a considerable proportion of older Boston. The historical development of the area is traced, and detailed plans for its improvement are outlined. Since the present character of the district is expected to continue, the plans show how it can be made helpful and pleasant as a tenement district. As a contribution to the tenement-house problem it has additional interest. The St. Louis City Plan Commission's "Twelfth Street, St. Louis' Most Needed Commercial Thoroughfare," is dated May, 1919. It is a study for the improvement of a street to form the backbone of St. Louis' street system. Of quite a different character is the study by Frank A. Waugh for the development of the village of Grand Canyon, Ariz., published by the U. S.

Forest Service, under whose jurisdiction the area belongs. The pamphlet has particular interest because it deals with a village in a national reservation existing for tourists and planned in relation to the Grand Canyon. Automobile parking spaces and an aviation landing place are features of the plan.

A Dallas Property Owners' Association has been formed primarily to rejuvenate and improve the down-town district of Dallas, Tex., the original city and its environs. Results of rapid growth have appeared in the distorted form of the city, and the Association indorses the inauguration of the Dallas City Plan Commission and the evident intention of the city to develop along scientific and efficient lines. A bulletin entitled "Union Station District," issued in June, is a study of one district in down-town Dallas near the new Union Station, showing why much land is vacant, and, therefore, idle from the point of view of property owners, and what improvements are necessary to make this land desirable. The work of this Association is a stimulating example of the recognition of the business value of city planning, and of what an organized force in the city can accomplish to promote sound planning and development.

City Planning in Reconstruction.—Although new construction has been greatly hampered by conditions of uncertainty and unrest, and although official comprehensive "reconstruction" programmes for the United States as a whole have been conspicuously neglected, nevertheless a survey of city planning throughout the country offers, in the judgment of Theodora Kimball in the *National Municipal Review*, substantial encouragement to those who see in orderly municipal development an effective remedy for industrial disorders. The term "reconstruction" as used in this country has been chiefly in the sense of "constructive development." An examination of the measures introduced into Congress in 1918 under this head reveals a lack of serious appreciation of the importance of developing environment. America's governmental attitude contrasts shamefully with that of the British Ministry of Reconstruction,

the new Ministry of Health, and the Local Government Board (see *Housing, infra*). However, as Miss Kimball points out, such a programme as that of the National Municipal League at Rochester in November, 1918, including national, county, and city planning (*A. Y. B.*, 1918, p. 266), indicates the leadership to which the forces of improvement may look, and some of our municipalities have individually put forth reconstruction programmes that show what vigorous organized citizenship can accomplish. St. Louis, Chicago, and Rochester have published such "platforms." That of St. Louis, printed in pamphlet form, contains a stirring introduction by Winston Churchill on the lessons of the war in community operation and on the vital need of city planning. The ability of St. Louis to raise money for war purposes is cited as an indication of what it should be able to do for permanent public improvements. The body of the publication outlines the principal features of the St. Louis city plan with cost estimates. The Chicago pamphlet strikes a similar note, emphasizing the immediate necessity of public works, on the one hand to take up the labor supply of returned soldiers and, on the other, to carry on the construction of the Chicago plan interrupted by the war. The Rochester programme is offered as a suggestion to the Bureau of City Planning as to possible first steps in the after-war development of the city. Although other social features appear on the programme, comprehensive city planning stands as one of the cardinal issues. The introduction to the Akron, Ohio, plan (see *supra*) states that it should be considered as a reconstruction programme, and Cleveland, Ohio, Pittsburgh and Johnstown, Pa., Albany, N. Y., as well as the State of New York, have gone on record with public-improvement plans for the readjustment period.

Excess Condemnation.—A survey of the excess condemnation movement in Europe and the United States is included in a report of the Chicago Bureau of Public Efficiency, entitled "Excess Condemnation." This report was issued primarily to aid in the movement to secure a constitutional amendment to permit excess condemnation in

Illinois. The pamphlet shows in detail, with illustrations of the unusable remnants of land now existing, how the improvements specifically referred to could have been met successfully under excess-condemnation powers. Some of the remnants are as narrow as three feet, constituting a menace to the appearance of the improved thoroughfares through their invitation to billboards or clutter. Concerning this report Herbert S. Swan says in the *National Municipal Review*:

If any additional proof were required as to the need of excess condemnation in street widenings and extensions it is supplied in the excellent report published by the Chicago Bureau of Public Efficiency. One diagram after another is presented in this brief showing the narrow, elongated gores left on the widened sides of the Michigan Avenue and Twelfth Street improvements. The triangular strips which will be left on either side of the proposed Ogden Avenue Extension, unless it is carried out by excess condemnation, are also shown. It is upon these illustrations, exhibiting in the most graphic and striking manner the evils incident to the replanning of streets where only the minimum land necessary for the street itself is taken by the city, that the Bureau builds its case for a constitutional amendment giving the cities of Illinois the power of excess condemnation.

In March, 1919, the Detroit City Plan Commission issued a bulletin on "Excess Condemnation: a Fact in Support of the Proposed Constitutional Amendment Approved by the Common Council of Detroit." The text of the proposed joint resolution to be submitted to the voters of the state is given as an excellent brief statement of the nature and advantages of excess condemnation. In Frank B. Williams' study of Akron, Ohio, also there is an extended discussion of this phase of city development. He shows particularly in relation to the acquirement of land for public buildings how essential is the power to protect the vicinity by a suitable arrangement of the land by height and appearance regulation of the structures erected. He gives an admirable summary of the progress in securing the power of excess condemnation in this country, with legal footnotes.

Condemnation Procedure in Great Britain.—In July, 1917, the British Premier, Lloyd-George, appointed a Land Acquisition and Valuation Com-

mittee to report defects in the existing system of dealing with such matters in Great Britain and to recommend desirable changes in the public interest. The Committee submitted two reports, one in January, and the other in November, 1918. The first report summarized the needs for extending powers of compulsory acquisition, the British term for condemnation, pointed out the slowness and costliness of present methods, and indicated how they might be simplified. The most striking innovation suggested was the creation of a sanctioning authority to be appointed by a selection committee chosen from members of the House of Lords and the House of Commons, to be reappointed annually and to serve without pay. The second report deals with specific amendments to the existing law. Under the head of "betterment" the Committee deals with the problem presented by cases in which an owner, a part of whose land has been taken for public use, receives by the action of the public authority a benefit to the land which remains in his hands. It is proposed that in such case a valuation shall be made of the benefit which he receives and his award diminished by such amount. It even goes so far as to propose that when a promoter of public improvement is a private person or corporation and when such improvement benefits adjacent private property, the value of such improvement shall be assessed and paid to the promoter to enable him to carry out his project. This proposal is clearly an extension of our policy of assessing benefited areas for the cost of certain improvements. Its application to new railroad and trolley lines would raise some interesting questions. Under the head of "recoupment" the Committee deals with problems which arise under what we call excess condemnation. The recommendations of the Committee represent a wide departure from precedents governing the acquisition of land in Great Britain in the past.

Transportation and Terminals.—Cleveland is concerned with a better coördination of railroads and interurban terminals with the location of the Union Station. Chicago is still wrestling with her unsettled terminal prob-

lem. Detroit's railroad problem appears acutely in relation to grade crossings. The Department of Public Works has issued a report on grade separation, outlining comprehensively the relation of the grade-separation programme to the city plan and other municipal activities.

Waterfront development receives attention in the report of the Baltimore City Plan Committee and in the St. Louis "reconstruction programme" (see *supra*), the latter pointing out the importance of inland-waterway development in the United States. Progress on port development is also reported in Philadelphia and again in New Orleans (see also IX, *Waterways and Harbors*). An important document is the preliminary joint report of the New York-New Jersey Port and Harbor Development Commission appointed under the laws of 1917 in New York and New Jersey to make a study of the Metropolitan Port District. It recommends a large technical organization to complete a comprehensive development report in two years to guide future construction.

Modern terminal planning is recommended in the reports of Syracuse, N. Y., Stillwater, Mich., and Grand Canyon, Ariz., all of which provide for aviation terminals. An Air Service station at Syracuse is located on the Government's transcontinental aerial mail route, which in itself suggests adequate landing places in the new city plan. Four places are proposed, together with a large aerodrome well outside the city. An air zone two miles in diameter over the city proper, in which aviators may not fly to endangering the public beneath, is suggested to be reserved. The Stillwater and Grand Canyon reports refer to the future of aerial transportation and call for aviation landing places.

Legal Status of City Planning.—As to the status of city planning under our Constitution and laws, one gets a rather gloomy view of the situation from reading McBain's *American City Progress and the Law* (1918) but a somewhat less pessimistic impression from Frank B. Williams' general summaries in his "Akron and Its Planning Law" published in April, 1919. Mr. Williams makes constructive suggestions as to constitutional amendments

that should be secured to alleviate the legal disabilities under which our city-planning programmes now labor. This report, prepared for the Akron Chamber of Commerce in connection with Dr. Nolen's plan, is considered by Miss Kimball as the most useful recent compilation of city-planning legal references yet published, comparing only with Mr. Williams' own studies in connection with Bridgeport three years ago.

City-Planning Promotion.—In the act establishing a Bureau of Municipalities in the Pennsylvania State Department of Internal Affairs it is expressly stated that one part of the Bureau's duties comprises publicity service to "promote a comprehensive plan or series of plans for the probable future requirement of cities, boroughs, or townships of the Commonwealth, either separately or jointly." In Vermont Norwich University has prepared a "programme of civic preparedness for Vermont communities" in a publication which, while giving general principles, aptly applies them to local conditions. The first considerable treatment of the subject of city-planning promotion has appeared, written by the managing director of the Chicago Plan Commission, Walter D. Moody, entitled, *What of the City?* As we read the record of Mr. Moody's work in "selling civilization," as he calls it, to the people of Chicago, we realize how many plans in other cities have languished because of inadequate educational campaigns. The later chapters trace the development of the Chicago plans, and the early chapters and the concluding summary chapter point out what promotion work involves, how it is essential to the success of the city plan, and how it should be conducted. A new citizen's committee on city plan has been organized in Pittsburgh for promotion purposes and has issued a leaflet setting forth a broad city-planning campaign. The Dallas Property Owners' Association (see *supra*) is another city-planning publicity organization.

City Maps.—A serious difficulty in carrying out city plans for undeveloped suburban areas has been the attitude of the courts in allowing compensation to owners for buildings condemned within the lines of mapped but

unconstructed streets. E. Stagg Whitten's report to the Board of Estimate and Apportionment brought forcibly to light the situation in New York City and recommended procedure whereby present obstacles to carrying out the official map may be removed. All proposed building not in accordance with mapped streets would be subjected to a stated delay before a permit could be issued, thus giving the City time to acquire an unopened street. In Akron the Planning Commission is also the Platting Commission, and according to the home-rule charter of Akron, no deed contrary to the official plat can be recorded; the report contains a statement of the requirements for plats of new allotments, of general interest. In the Syracuse city plan the work of the City Plan Commission in approving plats or preparing advance plans is to be noted.

War Memorials and the City Plan.

A number of proposals for war memorials have been intimately concerned with city planning. One of the most striking examples is that of La Crosse, Wis., which voted not to proceed with a soldiers' memorial until a comprehensive city plan has been secured. Sketches and plans have emanated from many cities showing an appreciation of a fitting relation between any idealistic monument to be erected and its location. In a number of cases rearrangements of streets and blocks desirable from other points of view as well have been proposed. Memorial parks and forests, memorial avenues, civic centers, community buildings and municipal auditoriums, memorial bridges, and many other forms of visible public works have been suggested or undertaken, some perhaps designated in an isolated fashion, but more of them considered in relation to other improvements. The American Federation of Arts and the American Civic Association are busily at work promoting the adoption of the right types of memorials. Both organizations have published pamphlets that have had wide attention. A bulletin of the War Camp Community Service describes the movement for community houses as war memorials (see also XIV, *Recreation*). The state of Pennsylvania, by an act approved May 1,

1919, created a State Art Commission whose approval is required both as to design and to location of all public monuments anywhere in the state except in cities of the first and second classes (which already have art commissions).

Civic Centers.—The most considerable civic-center report of the year is that published in April by the Milwaukee Board of Public Land Commissioners, entitled "Grouping of Public Buildings," prepared in accordance with a comprehensive city plan for Milwaukee now under way. It is devoted to convincing the citizens of the need for a civic center and outlining it in relation to the arterial street system. The site as approved by Olmsted and Nolen in their report of 1909, known as the Metropolitan Park Board Site, with revisions, is recommended for the impressive building group proposed. A proposed liberty memorial and civic center for Berkeley, Cal., is of interest, as well as a civic group for Dayton, Ohio. Progress on the San Francisco and Cleveland civic centers should be noted. It would appear that the civic center offers exceptional opportunity for war memorials, and without doubt many of the community buildings proposed for some of our smaller towns will form the nucleus for attractive centers of town life.

Zoning.—Interest in zoning continues to extend. Among other cities, it is now under consideration in Philadelphia, Portland, Ore. (where commissions are at work), Buffalo, Washington, (Senator Calder having introduced into Congress a bill to regulate the height, area, and use of buildings in the District of Columbia and to create a zoning commission), Dallas, San Francisco, Salt Lake City, Omaha, Detroit, Cleveland, and Niagara Falls. The Pennsylvania legislature of 1919 passed an act authorizing cities of the second class to regulate the height and bulk of buildings, to divide the city into districts for such purposes, and to regulate the location of trades and industries and the location of buildings. The Illinois legislature passed a law authorizing Chicago to pass a zoning ordinance. A conference of Ohio cities to secure the necessary authority to establish zoning was held in Cleveland on Oct. 20-21 under the aus-

pices of the Cleveland Chamber of Commerce. A bill to authorize a building-zone plan in Ohio cities having city-planning commissions was introduced in the legislature but was withdrawn when it was found that the cities already possessed home-rule power under the law.

The Portland, Ore., Zoning Commission was permanently established in December, 1918, a housing code was adopted in January, 1919, and the Oregon State Zoning Act became effective on May 29, 1919, at the same time with a state law establishing set-back lines, so that Portland has an excellent background for her districting work. The zone ordinance outlined has eight classes-of-use districts, four classes-of-height districts (according to stories), and two classes-of-area districts. Neighborhood zoning recommendations embodied in sketch plans are to be put together to form a general zoning plan, which will be the basis of the zoning ordinance to be adopted. John Nolen's "Zoning Problem of the City of Niagara Falls," issued by the city's Zoning Committee, is a brief outline of districting regulations. Here there are six districts each in the use, height, and area classifications, the determination of height districts being based on street widths. An excellent summary of the situation in the United States to date in regard to districting appears in F. B. Williams' Akron report, in connection with his recommendations for that city. The St. Louis zone ordinance is in process of amendment to

meet the strenuous objections of builders and real-estate men, who claim it has militated against necessary construction; another report on the same subject was published by the City Plan Commission in June. A tentative report of the Newark, N. J., Commission on Building Districts and Restrictions has been issued under the title "Proposed Building Zones for Newark." Alameda, Cal., has adopted a zone law which, it is claimed, combines the best features of the Los Angeles, St. Louis, and New York ordinances, and is similar to the zone ordinance adopted in Palo Alto, and the proposed Berkeley and Fresno ordinances. The Alameda ordinance applies to new building permits only, existing buildings and uses of property not being affected. Eight classes of use districts are established, two for residences, four for business and public, and two for industrial uses.

In the New York case of the West Side Mortgage Co. v. Leo, the Board of Appeals granted an individual the right to construct a garage when the individual really wanted the privilege of erecting a building to be used for the combined purpose of garage and stable. Having obtained permission to use the building as a garage, he used it as a stable in part without any further permission. The court decided that when the Board of Appeals granted the individual permission to use the building for a stipulated purpose, it did not give him permission to use it for another purpose either in part or in whole.

HOUSING

The Housing Shortage.—The most striking feature of the housing situation in the United States, and, for that matter, abroad, is the shortage of houses, a fact testified to by all the leading experts on the subject. The whole situation has been reviewed by John J. Murphy in the *National Municipal Review*.

New York City has been feeling the acute shortage of housing accommodations and has turned loose "an imposing array of inquisitorial talent." No less than four authorized committees and commissioners are making detailed investigations, and they are being assisted by a host of committees of

voluntary organizations of one kind and another. The committees which have been carrying on *bona fide* investigations are: Committee on Housing of the Governor's Reconstruction Commission, Legislative Committee on Housing, the Mayor's Committee on Rent Profiteering, and the Aldermanic Committee on Rent Profiteering. Although only one of these committees has thus far made a formal report, the conclusion at which they all seem to be arriving is that no solution to the high-rent problem will be found until normal building activities are resumed; that instead of seeking means to punish the rent profiteer, who has

been discovered to be comparatively rare, all bodies interested in the housing problem should turn their major energies to promoting confidence in the building industry and increasing the number of investors in real estate. A study has also been made to find out what kind of men are in control of apartments and the conditions of sanitation and upkeep under which the greater part of the working people of New York live. It was found that a great many of these properties have fallen into the hands of absentee landlords or lessees. The latter are holding their properties, very often only for a short time, with the idea of getting as much out of it as they can. In innumerable cases it has been found that in the same neighborhood the rents are higher under leasers than under owners.

Philadelphia during the war faced the most critical housing situation in its history. The center of the greatest shipbuilding and munitions district in the country, its industrial population increased by leaps and bounds. First came the great negro migration of 1917, which swamped the sections inhabited by colored people. Then came an equally great, though not as spectacular, migration of white workers. Not only were houses overcrowded, but unfit houses, houses that had stood vacant for years because of their conditions, were occupied, and houses that had been kept in fair repair before were permitted to run down because materials and labor were scarce and costly and because landlords were able to get tenants at high rents almost regardless of the condition of the dwelling. Meanwhile the Health Department, having lost some of its best men to Federal services, let down in its law enforcement. Philadelphia, therefore, began the new era of peace under a serious handicap, and since the ending of the war the city continues to be a center of great industrial activity. The "own-your-home" movement and similar efforts had some effect, but the scarcity of available labor and material has tended, as elsewhere, to restrict building operations and therefore to perpetuate the shortage.

Cincinnati affords a typical example. It wants 7,500 houses and \$30,000,000 with which to build them, ac-

cording to recent reports. Real-estate men have advanced the following suggestions for meeting the shortage which exists all over the country: (1) passage by Congress of the Home Credit bill; (2) promotion of companies to finance the building of homes for working men; (3) have industrial concerns advance funds to employees to build homes on easy terms; and (4) afford every sort of encouragement to employees in acquiring homes by steady work and good wages. The secretary of the Federal Rent Board of Cleveland has estimated that that city is short 16,000 houses. It is said that at the time of the 1910 census 34 per cent. of the population of Cleveland owned their own homes; now this proportion has decreased to 25 per cent. Cleveland, therefore, is in pursuit of its lost title as the first city in the land in the number of home owners. The Federal Rent Board has asked the City Council to provide for publication in the *City Record* all of its rent-adjustment proceedings in order to place on record the names of property owners who took advantage of the housing shortage to profiteer.

The New York Bureau of Municipal Information is endeavoring to collect data from cities all over the United States as to the manner in which the housing shortage and rent problem is being met in different localities. An extensive list of books, magazine articles, reports, and pamphlets dealing with housing has been published in the *Bulletin of the National Housing Association* (105 East 22d St., New York), prepared by F. W. Jenkins, librarian of the Russell Sage Foundation.

Housing Projects.—Portland, Ore., has a housing code which went into effect on April 23, drafted by a committee chosen from the Portland chapter of the American Institute of Architects, Portland Realty Board, and Portland Housing Association in cooperation with the Building Department. The committee used the Minneapolis housing law and Veiller's "model housing law" as a basis. The code was passed without an opposing voice raised at the public hearing.

The Detroit House Financing Corporation, an outgrowth of the agitation for more housing facilities, began

business on Aug. 11, with a capital of \$3,000,000. Most of the greater industries of the city are represented on the list of stockholders. Financial assistance to the man of limited means is the prime motive of the enterprise. In general, homes will be built only for applicants having lots free and clear. No loan over \$6,000 will be made, and it is intended to confine building activities within the city limits. The loan will not exceed 75 per cent. of the total cost of the home, and the home builder is expected to pay back one per cent. of the loan a month. Interest will be at six per cent.

The Flint, Mich., Civic Building Association was formed before the war to promote better housing. Four hundred acres of land were bought just across the boundary line of the city, and 132 houses were built. All street work was done. Plans were made with the city of Flint so that all houses were connected with sewer, water, electricity, and gas. In 1919 the General Motors Co. took over the whole plant and spent \$6,000,000 before Dec. 1, putting up 1,000 houses. Since the Du Ponts bought an interest in the General Motors Co., they have developed a city of 1,800, which will soon be increased from 2,000 to 3,000, a well organized and orderly community.

At Elizabeth, N. J., the directors of the Standard Oil Co. of New Jersey have been forced to resort to a development project to solve the housing problem facing the thousands of employees of its big refining plant. The Company has secured an option on a tract of about 30 acres within walking distance of the refinery, which will be subdivided into lots of ample size to be sold to employees who have been with the organization at least one year. A fund of \$500,000 has been voted to finance the project. Loans for the erection of dwellings will be made to employees at five per cent. per annum, the Company seeking no profit. Each householder may select the type of house that satisfies his individual taste. The entire project will be under the joint management of a committee representing both the employees and the Company.

The Philadelphia & Reading Coal and Iron Co. is constructing 868 dou-

ble houses and 284 single houses in the anthracite regions, accommodation approximately sufficient to house a population of 10,000. The Carnegie Steel Corporation is canvassing its employees at Youngstown, Ohio, to ascertain their views on a joint scheme of company and employees for the building of homes. This Corporation has already developed a considerable industrial economy of its own. Other similar schemes are being fostered by the U. S. Housing Corporation.

State Aid to Home Builders.—North Dakota is the first state to embark upon an extension programme of state aid to home builders. By one law enacted by the 1919 legislature the state will establish and operate the North Dakota Home Builders' Association, to which has been appropriated \$100,000 for the purpose of enabling inhabitants of the state to acquire their own homes. A second law provides for the issue of bonds to an amount not to exceed \$10,000,000 to cover first mortgages on real estate which shall have been issued by the Bank of North Dakota. The Home Builders' Association is to be operated by the State Industrial Commission, which is authorized to acquire by purchase, lease, or exercise of the right of eminent domain all requisite property rights, and may construct, repair, and remodel buildings. No home is to be built or purchased and sold at a price to exceed \$5,000, except in the case of a farm home, in which case the selling price is not to exceed \$10,000, the word "home" being taken to mean "a dwelling house within or adjacent to a town, village, or city together with such equipments as are customarily used in connection with a dwelling house." The words "farm home" are taken to mean "a tract of agricultural land together with a dwelling house, a barn, and such other farm buildings and equipment as are customarily used in connection with a farm home." The law provides that "the Association shall make a specialty of building standardized houses, barns and other buildings." The Industrial Commission must fix the rate of interest on all deposits and loans and the charges for all services rendered by the Association, but no interest rate is to exceed six per cent. per annum.

VI. MUNICIPAL GOVERNMENT

The Federal Government and Housing.—An informal conference was held in Philadelphia on Jan. 3 to discuss the possible creation of a Federal agency to deal, in whole or in part, with industrial housing, town planning, and municipal affairs. The call was signed by the presidents of a number of national bodies and Samuel Gompers, president of the American Federation of Labor. The sense of the majority of those present was expressed as follows:

(1) Some kind of Federal agency to deal with housing, town planning, or community planning should be established.

(2) Such a Federal agency should deal with housing and community planning in the broad sense of dealing with the entire physical environment of the inhabitants.

(3) The proposed Federal agency should be limited to the function of research, experimentation, and dissemination of information, acting as a central agency for the service of state authorities and local committees.

(4) It is more expedient that the proposed new agency, without consolidation, should act as a means of making more available, from the point of view of the community as a social unit, such technical resources as can be supplied by existing independent Federal agencies (in which other points of view may be dominant) and should undertake within its own organization direct technical investigation only in such parts of its field as are beyond the scope of existing governmental agencies.

It was also the sense of the majority that Federal action should be taken toward creating a comprehensive and systematic mechanism to facilitate the financing of housing.

A most complete report on the subject of planning of houses for workingmen has been published by the U. S. Housing Corporation of the Department of Labor. It deals exclusively with the architectural, town planning, and engineering divisions of the Corporation. It contains 544 pages and more than 200 illustrations of house plans and elevations. It gives the details of the features and the statistics of 26,000 houses, the number originally planned by the Housing Corporation for war needs, and a description of the architectural features of each of the project that was planned. The Architectural Division made a particular study of economical house plans. Detailed attention was given to the de-

signing of houses costing from \$1,800 to \$4,000. Many of these plans bring out important economies, yet the houses are most convenient, homelike, and attractive. Particular attention was given to standardizing plans and materials and cutting out unnecessary fixtures. In each of the projects only four or five house plans were used. By reversing these plans, by using the same plan in detached and semi-detached houses, by using a pitched roof on one and a gambrel roof on another, by using clapboards on some and shingles or stucco on others, it was possible with these four or five plans to develop a village that had none of the monotony of the typical factory town, but instead one that presented a most pleasant aspect. Another volume is to cover the work of the transportation, homes, registration, real estate, construction, and other divisions of the Housing Corporation.

The Construction Division of the Army has also issued extensive reports of its work in planning the camp towns, four publications standing to its credit. In these there is recorded much experience of permanent value in construction work, not only in matters of roads and sanitation, but also of warehouses and port terminals and of hospital construction. A record of the work of the Emergency Fleet Corporation in housing shipworkers has been given to a limited public in the form of a portfolio of interesting drawings without text or statistics.

A brief summary of the technical lessons from the work of both the Housing Corporation (by Frederick Law Olmstead) and Emergency Fleet Corporation (by B. A. Haldeman) has been published by the American City Planning Institute, following a meeting in Philadelphia on Jan. 26. Further detailed studies of some of the questions there raised were laid before a joint meeting of the newly formed Canadian Town Planning Institute and the American City Planning Institute in the latter part of October. The influence of the war on town planning matters appeared clearly also at the Niagara Falls-Buffalo meeting of the National Conference on City Planning in May. In the words of Miss Kimball: "When one looks back analytically at two years' work

in city planning, one realizes that an impetus has been given to the subject that should equal many years of previous normal progress."

The Senate passed on Dec. 12, 1918, a resolution directing the U. S. Housing Corporation to stop all work on all Government housing projects that were not 75 per cent. completed and to cancel all contracts in relation thereto. This resolution was adopted by the Senate on the ground that it would save money to the taxpayers of the country. The action taken, however, was not well considered. It was opposed strongly by the officials of the U. S. Housing Corporation, who had already of their own volition before Congress acted stopped all work and terminated contracts wherever in their judgment there would not be permanent demand after the war for such housing projects and therefore the money could be saved to the country. On the signing of the armistice on Nov. 11, 1918, 55 projects were abandoned, 14 projects were curtailed, and 20 only proceeded with as planned. The projects cancelled involved the expenditure of over \$17,000,000 at a loss of about \$4,000,000. The projects cancelled without loss involved about \$5,450,000, and the projects which were curtailed have been reduced in cost from \$17,000,000 odd to \$11,000,000. In addition, approximately \$20,000,000 worth of housing which was ready to submit to contractors was voluntarily abandoned by the Housing Corporation.

A bill to create a Bureau of Housing and Living Conditions in the Department of Labor is pending in Congress, introduced by Representative Tinkham of Massachusetts. If passed this Bureau will be charged with the duty of:

(1) Investigating the housing and living conditions of the industrial population.

(2) Conducting research and experimentation looking toward the provision and publication of such information as will make economically practicable the elimination of slums, the improvement of living conditions, the reduction of the construction cost of dwellings, and the financing of extended home-building operations without Federal appropriation.

(3) Assisting communities during the present housing shortage in making available to the utmost extent all existing housing facilities.

(4) Serving as a clearing house of information on housing and living conditions.

Housing in Canada.—Canada did not attempt to carry out any Government housing during the war. Hence, her present position is not prejudiced by the carrying out of any extravagant and hurried scheme during the war. After the war Canada began to deal with housing as a national affair and as a problem of reconstruction, and in Thomas Adams' opinion the Canadian policy is based on the soundest principles that can be applied under a federal constitution in a democratic country.

Immediately after the armistice was signed on Nov. 11, 1918, representatives of the federal and provincial Governments of Canada met and discussed the desirability of creating better housing conditions. It was observed that there had been a practical cessation of building operations during the war, with a consequent scarcity of housing accommodations. On Dec. 3 a Dominion order-in-council was issued granting a loan of \$25,000,000, and on Dec. 12 a committee of five members of the Cabinet was appointed to administer the loan. Prior to this action by the Dominion Government, the Provincial Government of Ontario had decided to appropriate \$2,000,000 for housing in Ontario as an addition to any federal loan that might be given. The federal loan of \$25,000,000 will be distributed among the nine provinces of Canada *pro rata* to the population. It is hoped that each province will add a contribution of its own so as to make the available total much larger. The money will be lent at five per cent. to the provinces and will be repayable by them, in most cases, in six equal monthly instalments of principal and interest.

Under the constitution of Canada the duty of providing houses and controlling land development is a provincial and municipal, and not a federal matter. Many have urged that the federal Government should itself carry out housing schemes, but this would interfere with the autonomy of both the provinces and the municipalities. The machinery represents complete co-operation between the federal, provincial, and municipal governments.

Since the federal scheme was issued on Feb. 20, 1919, the following provinces have passed acts of Parliament to take advantage of the loan and deal with the procedure necessary for that purpose: Nova Scotia, Prince Edward Island, New Brunswick, Quebec, Ontario, Manitoba, and British Columbia. In four out of these provinces general schemes of housing having been prepared, and in the other three schemes are in course of preparation. In Quebec and Ontario directors of housing have been appointed, and steps to create special officials are also being taken in the other provinces. The Director of Housing of Ontario names 47 municipalities that have passed the necessary by-laws to bring them under the provisions of the Ontario Housing Act, 1919. His report says further:

About five hundred plans have been approved by the director of the bureau of municipal affairs, and in a considerable number of the above-mentioned municipalities houses are under construction. The director estimates that the loans required by these municipalities will aggregate nearly \$10,000,000. About 20 municipalities are considering plans for acquiring land and erecting houses on a large scale. Some of them have already purchased land.

Housing in Great Britain.—The provisions of the new Housing bill for Great Britain have been explained by Dr. Addison, Minister of Reconstruction, as follows:

Many estimates have been made as to the number of new houses required. The lowest was 300,000. This is regarded as totally inadequate. But there is little chance of more than 300,000 houses being built at the present owing to the shortage of labor and material, and the lack of skilled labor is the greater difficulty of the two. Up to Jan. 21, the total number of applications by local authorities for the sanction of building sites was only 343, meaning some 10,000 houses. There are now 460 applications with an estimated provision of between 80,000 and 90,000 houses. No building has been begun in London.

To stimulate local action, the Local Government Board asks for power to force the hands of municipalities. Surveys of the situation and schemes for new houses to supply the deficiencies are to be submitted within three months after the passing of the Housing Act. If no scheme is submitted, the Local Government Board may prepare one themselves. If a local authority fails to carry out its housing obligations, the Local Government Board may transfer them to the county council or act of their own volition. In

either case the cost will have to be borne by the local authority.

As to slums, the bill provides that when a slum area is condemned as unfit for habitation the value of the land acquired by compulsory purchase shall be that of the site cleared of buildings and available for development. In other words, it will be the value of a decent housing site, neither that of a crowded slum nor that of a factory. . . . Many slums have become slums because the immediate leaseholder could not afford to keep the property in repair. Where this degeneration is proved, the superior landlord is empowered with the right of re-entry to his property on terms to be decided by a court of law.

The English housing problem is so vast and is developing so rapidly that it cannot be summarized. Those who desire to keep in touch with incidents and details of the situation will find abundant references in the pages of *Housing Betterment* (105 East 22d St., New York) and the *National Municipal Review*.

Housing in France.—Before the war some timid attempts at the housing of workingmen, impractical because only on a purely philanthropic basis, were made in France. There were also many workingmen's villages established by industrial firms. Since the war the subject has become one of general interest. In September, 1918, a circular was sent out from the Ministry of Labor calling attention of the *préfets* to a strict enforcement of the law concerning the creation in every department and in every town of *Offices public d'habitations à bon marché* with the coöperation of every agency of social progress, especially of the great employers of labor. These *offices*, which are really a kind of public trust or foundation, concern themselves not only with cheap housing, but also with what is called in England garden villages or garden suburbs.

The housing problem in France is exceedingly acute. The Ministry of Labor declares the development of workmen's dwellings and the improvement of housing to be among the most pressing problems of the post-war period. A report of the "Office for Cheap Dwellings" of the Department of the Seine from July 10, 1916, to Dec. 31, 1918, with its numerous and lengthy annexes, is an excellent summary of housing and city-planning conditions, activities, and projects for

Greater Paris from pre-war times to the beginning of 1919. It reveals the fact, well known to students of municipal affairs, that France, noted for its architectural and civic achievements in the past, is at present lagging behind the other progressive countries of Europe in housing and city planning. Far from disguising or minimizing, the report states most emphatically that Greater Paris has no official plan, and that Paris is probably the most congested of all the great cities of Europe.

Special emphasis is made upon the necessity of preventing all speculation which is sure to occur if land is sold in fee. The need of strict zoning, protection of æsthetic and other amenities, and furnishing of schools, amusements, and all the features of normal life are dwelt upon. In France increased costs are a serious problem, building costs having tripled since the beginning of the war, with no indication of lower figures for the future. The only remedy suggested is the frank recognition that cheap housing is a public necessity and the providing of

such housing, so far as necessary, a public function. The report suggests Government loans at two per cent. and 2½ per cent., subventions, and, for houses built by cities, the payment by the state of the difference between the present building costs and costs at a normal to be determined hereafter.

The *Société Française des Architectes-Urbanistes* held in Paris on June 11-13 the Inter-Allied Town Planning Conference. These dates were selected because they coincided with the sojourn in Paris of a number of American town planners who were there in connection with the educational service of the American Army. At the same date the Chauny town-planning competition drawings were put on view, and there was also an exhibit on town planning in general organized by the U. S. Army educational service in connection with *La Renaissance des Cités*, an organization which is doing much to popularize town planning. The British also are said to be enthusiastic participants in the plan and to have sent over to the Conference a large delegation.

FIRE PREVENTION

Progress in Fire Prevention.—The National Fire Prevention Association is pressing its educational campaign in every direction, both through its own organization and through others. Its campaign for the "individual-liability" ordinance is making progress, especially in Texas. It was announced at the annual meeting in Ottawa in May that during the preceding 12 months seven new cities had legislated along this line. The Committee on Safety to Life is grappling with the problems of safety in department stores and schools, both in urgent need of attention. A special effort is being made to educate the public as to the hazards of the nitrocellulose motion-picture film when used under conditions in which the standard protection required in motion-picture theatres is not provided. The Association is likewise carrying on the campaign for a "safe and sane Fourth of July." *Fire and Water Engineering* and leaders in the field of fire prevention are backing with enthusiasm a plan for a nationwide fire-prevention campaign through

motion pictures, which is being launched by that publication in conjunction with the Universal Film Co. The plan has received the hearty endorsement of many city officials.

Oct. 9 is now almost universally recognized as Fire Prevention Day. This is the anniversary of the great Chicago fire, and although there was at one time a tendency in California in favor of the day on which the San Francisco conflagration occurred, that state is now falling into line. There is hardly a state which does not recognize Oct. 9 in one way or another, whether by proclamation of the governor or through special activities of the fire marshals or city authorities. In most states proclamations are issued.

Individual Liability.—Pennsylvania is still the only state that has an individual-liability law, and its law applies only to cities of the second class. Municipal ordinances enforcing the same principles are in operation in the cities of Cleveland and Cincinnati, Ohio; Portland, Ore.; Austin, Cle-

VI. MUNICIPAL GOVERNMENT

burne, San Angelo, Wichita Falls, Greenville and Ranger, Tex., Newark, N. J.; and Billings, Mont. So far as the National Fire Prevention Association is aware, there are no provincial laws in Canada on this subject, but the Dominion Criminal Code has recently been amended, rendering anyone liable to two years' imprisonment who by negligence causes any fire which occasions loss of life or property.

Fire-Protection Standards.—*Fire and Water Engineering* published during the year a series of articles on private fire-protection service. The National Board of Fire Underwriters published a bulletin entitled "Safeguarding America against Fire." According to this the strictly preventable fire causes in 1918 were \$60,466,054; the partly preventable causes, \$99,606,293; and the unknown causes (probably largely preventable), \$48,632,993

(see also XIII, *Property Insurance*). The Underwriters' Laboratories (Chicago) continue to publish in pamphlet form the results of their scientific investigation and research. The *Fireman's Herald* of March 1, 1919, contains data of the equipment of the fire departments of the United States and Canada.

The National Board of Fire Underwriters published in May a further report on fire prevention and engineering standards. During the year 1918 its engineering force devoted practically its entire time to fire prevention and fire-prevention work for various Government departments. The supervision of fire-protection features of construction and operation of Government utilities continued for some time after the signing of the armistice, and one of its engineers is by request still acting as advisory fire-protection engineer in the War Department.

POLICE

Police Unionization.—The Boston police strike was the big outstanding fact of the year in police affairs (see also I, *American History*; and XV, *Labor*). It involved not only fundamental questions of discipline, but the right of policemen to organize as branches or subdivisions of some outside body over which there is no direct public control. The *New York Times* is responsible for the statement that policemen's unions affiliated with the American Federation of Labor have been formed in 37 cities, most of them, it is stated, with practically 100 per cent. membership. The list, as supplied by the Federation, follows:

Oklahoma City, Okla.	Terre Haute, Ind.
Knoxville, Tenn.	Moberly, Mo.
Peoria, Ill.	Los Angeles, Cal.
Washington, D. C.	Wheeling, W. Va.
Jersey City, N. J.	Chattanooga, Tenn.
Macon, Ga.	Hattiesburg, Miss.
Cumberland, Md.	Miami, Fla.
Tulsa, Okla.	Superior, Wis.
Fort Worth, Tex.	Huntington, W. Va.
East St. Louis, Ill.	Portsmouth, Va.
Norfolk, Va.	Richmond, Cal.
Pueblo, Col.	Key West, Fla.
Boston, Mass.	Janesville, Ohio.
Warren, Ohio	St. Joseph, Mo.
Clarksburg, W. Va.	Lynn, Mass.
Portland, Ore.	Vicksburg, Miss.
St. Paul, Minn.	Belleville, Ill.
Meridian, Miss.	Topeka, Kan.
Evansville, Ind.	

The aim of the movement is to organize the police forces of the country into a national body, similar to that of other branches of the Federation.

Legal Powers of Policemen.—St. Louis enacted an ordinance on July 10, 1918, providing that "drivers must at all times comply with any direction by voice or hand of any member of the police force as to stopping, starting, or departing from any place." In the case of *City of St. Louis v. Allen* (204 S. W., 1083) a chauffeur brought the wife of his employer down town in an automobile and kept the machine standing in front of a large office building where there was a sign, "Don't stand between these posts." After remaining there for some 15 or 20 minutes, he was requested by the elevator operator of the building to move on. Failing to comply with this request, a policeman gave similar orders, and defendant told him that he would remain where he was until the return of the lady for whom he was waiting. He was thereupon arrested and convicted of violating the ordinance. This conviction was affirmed by an intermediate court, and the case finally carried to the Supreme Court of Missouri, which reversed the lower court, indicating that in this instance

the city authorities may have been morally right and the defendant in the wrong, but:

The ordinance here involved puts the citizen in the arbitrary power of the officer, regardless of the circumstances of the case. Its invalidity is so glaring that the respondent has not cited any authority to uphold it. In *Bessonies v. City of Indianapolis* (71 Ind. 189), and in *City of Elkhart v. Murray* (165 Ind. 304, 75 N. E. 593, 1 L. R. A. (N. S.) 940, 112 Am. St. Rep. 228, 6 Ann. Cas. 748) it was held that such ordinances are violative of the constitutional provision which guarantees the equal protection of the laws. It was there said that what the legislature cannot do, it cannot authorize a municipal corporation to do. In our opinion the ordinance in question is subject to the objection of the laws, and that though the city may have a most meritorious case, it cannot be based on that invalid ordinance.

Policewomen.—Women police are becoming a regular feature of life in the larger town both in the United States and in Great Britain. In Lon-

don they are to be met frequently patrolling the streets in uniform which is indistinguishable from that of the ordinary constable. Glasgow Corporation is also considering favorably a proposal to employ women police in that city. The first policewomen officially appointed were at Grantham in 1915, and in 1916 the Ministry of Munitions decided to appoint policewomen to the national munition factories. Their duty was to keep order outside the factories, and they lived in barracks and did the usual beat of policemen. London and other towns followed their example, and policewomen were appointed to patrol the parks and take duty outside huts, etc., and thereupon the original voluntary organization was disbanded. Experience has shown that their work is valuable, and it seems probable that before long the institution will become a regular official part of police organization generally, at any rate in our larger towns.

NUISANCES

Smoke.—In the judgment of the Pittsburgh Bureau of Smoke Regulation the most important developments in connection with the smoke nuisance during the year is the matter of fuel conservation as taken up by the railroads. The chief of the Bureau believes it is the most significant step ever taken tending toward smoke abatement. The experiment, started in March, is a good-natured competition between engine crews to determine with how small an amount of coal normal runs can be made between certain points, in this case between Pittsburgh and Altoona. Figures compiled for the first four months of the experiment show that in June a saving of approximately 15 per cent. over the amount used in March was realized on passenger hauls. In March the number of pounds of coal per locomotive mile, in passenger service, was 150.5, whereas in June it was 124.9. Corresponding figures on freight haulage were 271.5 for March and 249.9 for June. To determine the amount of coal used for the same haul by different crews, checkers, who are expert firemen operating under the title of firemen instructors, from time to time make trips in the engine cab and

note the number of shovelfuls of coal used. After a trip with another crew, comparison is made and the figures submitted to the superintendent of the division, who issues a bulletin twice a week which is posted at all stations and terminals. These checkers also note any improvement or increase in the amount of dense smoke issuing from the locomotives, and this is included in their reports.

In Chicago plans are being made by the health commissioner and the city prosecutor for pushing suits against violators of the smoke-abatement ordinance. Arrangements have been made whereby the smoke-inspection bureau of the Health Department will gather all of its evidence against recent violators and place it in the hands of the prosecutor for him to proceed upon in court actions. An effort is likewise making to control the small, privately owned power plants. A system of observation posts covering the entire city has been evolved by the commissioner, with the aid of the head of the sanitary bureau and the chief deputy smoke inspector, and is being placed in operation. A daily watch will be kept on the smokestacks throughout the city from 40 points of vantage when

VI. MUNICIPAL GOVERNMENT

the system is established. Already 23 of the 40 stations have been established. Five of them are in the Loop district. It is the intention of the commissioner to keep the observers on the lookout for violators, both night and day. The commissioner has also taken a stand that the railroad can diminish the nuisance without waiting for electrification.

Billboards.—New York City has found a new solution of the outdoor-advertising problem. Unable to suppress the billboard because it is ugly, the city has begun to do so in certain localities because it is out of place. For this purpose it makes use of the building-zone regulations, which went into effect on June 25, 1916 (*A. Y. B.*, 1917, p. 215) that divides the city into residence, business, and unrestricted building districts and provides that in a residence district no building shall be erected other than a building, with its usual accessories, intended or designed exclusively for "a dwelling or such public purposes as clubs, churches, etc." The term "accessory use" shall not include a business nor shall it include any building or use to which it is accessory. In a previous section the word "building" is stated to include the word "structure." A billboard is not a residential structure or accessory to such a structure. There is a "zoning committee" in the city, formed to protect the zoning ordinance which has begun to call the attention of the authorities to this infringement of the resolution. Already 13 billboards erected on Riverside Drive have lost their permits.

Through the efforts of Cincinnati's building commissioner, an ordinance has been enacted prohibiting the maintenance or erection of billboards in any residence block without the consent in writing of the owners of a majority of the property on both sides of the street. For a long time the residence sections of the city have been disfigured by hideous billboards. They have caused property values to decrease and have given rise to all kinds of nuisances wherever they exist. The building commissioner had a strong public opinion back of him which ensured the enactment of the ordinance without difficulty. Already several prosecutions have begun.

Two suits brought by the St. Louis Poster Advertising Co. and others were filed one in the state court and the other in the U. S. District Court. The Missouri Supreme Court (195 S. W. 717) gave an adverse judgment on the first and in the second the bill was dismissed. The ordinance complained against was passed on April 7, 1905. It permits no billboards of 25 ft. square or more to be erected without a permit and none to extend more than 14 ft. above the ground. Moreover, the ordinance requires four feet between the lower edge and the ground; forbids an approach of nearer than six feet to any building or to the side of the lot, or nearer than two feet to any other billboard, or more than 15 ft. to the street line, and with qualifications requires conformity to the building line. No billboard is to exceed 400 sq. ft. in superficial area. The objection was that this ordinance was contrary to the Fourteenth Amendment in various respects. On appeal to the U. S. Supreme Court Justice Holmes delivered the opinion of the Court, (249 U. S. 269) holding that the restrictions in the ordinance are not unreasonable or unconstitutional limitations of the liberty of the individual or of private property and land; that billboards may properly be placed in a class by themselves (citing, *St. Louis Gunning Adv. Co. v. St. Louis*); that restrictions may be put on billboards even though danger from fire and wind may be eliminated by good construction; that the city may discourage billboards by a high tax and that the companies' contracts for advertising, although entered into before the passage of the ordinance, are subject thereto as against objections to its incidental effect upon them. The Court said also:

Possibly one or two details, especially the requirement of conformity to the building line, have æsthetic considerations in view more obviously than anything else. But as the main burdens imposed stand on other ground, we should not be prepared to deny the validity of relatively trifling requirements that did not look solely to the satisfaction of rudimentary wants that alone we recognize as necessary.

The American Civic Association in March published a striking pamphlet, "Important Advances Toward Eradicating the Billboard Nuisance."

VI. MUNICIPAL GOVERNMENT

MUNICIPAL ORGANIZATIONS

National Municipal League.—The *National Municipal Review* first published in 1912 as a quarterly in succession to the *Proceedings* of the National Municipal League has been converted into a monthly under the editorial supervision of Clinton Rogers Woodruff, Charles C. Williamson, and Richard S. Childs. Later Russell Ramsey was made assistant editor. During the year two important studies were published as pamphlet supplements to the *Review*, one on the "Assessment of Real Estate," by Lawson Purdy, president of the League, and the other on the "Reorganization of State Departments," by A. E. Buck of the New York Bureau. During 1919 also two new volumes were published in the National Municipal League Series (published by D. Appleton & Co.), one on *Experts in City Government*, edited by E. A. Fitzpatrick, and the other *A New Municipal Program*, edited by Clinton Rogers Woodruff.

The annual meeting of the League was held in Cleveland on Dec. 29-31. It partook of the nature of a moot constitutional convention and discussed those state and municipal questions which are likely to be considered in the approaching Illinois and Nebraska constitutional conventions. After 25 years of service, the secretary, Clinton Rogers Woodruff, announced in April that he would not be a candidate for reelection, but he retains the office temporarily. Charles E. Hughes was elected president for 1920 and F. A. Vanderlip treasurer.

The American Civic Association held its fifteenth annual meeting in Philadelphia, Oct. 29-31, the programme being devoted to constructive civic work. The following general officers were elected: J. Horace McFarland, Harrisburg, Pa., president; Clin-

ton Rogers Woodruff, Philadelphia, Pa., first vice-president; Miss Eleanor E. Marshall, Washington, D. C., corresponding secretary; Andrew W. Crawford, Philadelphia, field secretary.

The City Planning Conference. held institute meetings in Philadelphia on January 28; at Niagara Falls, May 27-28; at Buffalo, May 29; and at Ottawa, Oct. 17-18. The president of the Conference is Nelson P. Lewis, engineer of the New York City Board of Estimate and Apportionment; the vice-president, Lawson Purdy, New York; the secretary, Flavel Shurtleff, 60 State Street, Boston.

The National Housing Association held several local conferences during the year. The officers are Robert W. DeForest, president, and Lawrence Veiller, 105 East 22d St., New York, secretary and treasurer.

The American Society of Municipal Improvements met in New Orleans Nov. 11-13. G. D. Norton of Buffalo was elected president, and Charles Carroll Brown, Valparaiso, Ind., was reelected secretary. The next meeting will be held in Buffalo.

The Union of Canadian Municipalities held its annual meeting in Kingston, Ontario. Harold Fisher, mayor of Ottawa, was elected president and W. D. Lighthall, K. C., Montreal, was reelected secretary.

The City Managers' Association met in Indianapolis, Oct. 27-29, under the presidency of C. O. Bingham, city manager of Waltham, in conjunction with the meeting of the National Association of Commercial Secretaries. Henry H. Freeman, city manager of Kalamazoo, was elected president, and Harrison Gray Otis, Tribune Building, New York, was reelected secretary.

MISCELLANEOUS

Municipal Elections.—Philadelphia had two important elections within a space of six weeks. The first was the primary on Sept. 16, when the candidate supported by the Independents and the Republican Alliance (a faction of the Republican Party) defeated the Vare organization candidate by 1,313 votes, the Independents

making the fight within the Republican party. The successful candidate, J. Hampton Moore, was elected at the general election by a majority of 174,000, breaking all records. William Hale Thompson was reelected mayor of Chicago on April 1 by a plurality of 18,000. In the Republican primary, Thompson received more votes than

the combined vote of his two opponents, although his administration has generally been regarded as one of the poorest the city has had in a generation. Springfield, Ohio, defeated two of the present commissioners who were running for reelection by a majority of 3,300, two union labor men being chosen in their place. Tammany's candidate was defeated after a warm fight for the president of the New York City Board of Aldermen by F. H. LaGuardia, a Republican, his majority being less than 1,400. Its judicial ticket was also defeated. In Rochester, N. Y., Mayor Edgerton was reelected for the seventh time. The election of April 1 in Milwaukee was one of the most bitterly fought Milwaukee ever witnessed, the Socialists being defeated in their effort to secure control of the School Board. Their judicial ticket was also defeated.

The Pennsylvania legislature of 1919 took a backward step by the passage of a law repealing the non-partisan election provisions for cities of the third class and substituting partisan elections. The law also makes the treasurers in cities of this class elective by the people instead of by the council. This repeal, affecting more than 30 cities, tears down all the good work that has been done in the last five years through elections conducted on local issues to break the power of machine rule and special privileges in these cities. The non-partisan election law for cities of the third class, together with the non-partisan judicial ballot law, was passed by the legislature elected during the Progressive upheaval in 1912.

Municipal Regulation of Aerial Traffic.—The British Civil Aerial Transport Committee points out in what direction it will be essential for municipalities and other governing bodies to exercise control over the use of aircraft. So far as internal services in England are concerned, the great point is to make use of the speed capabilities of the airplane by reducing terminal delays to a minimum. If much time has to be wasted in conveying mails or passengers to the airdrome before the aerial journey can be started, and subsequently in conveyance to the ultimate destination after the landing ground has been reached,

then it is quite conceivable that an inherently slower method of transit may hold its own as regards speed from terminal point to terminal point. There are obvious difficulties in the way of placing airdromes and landing grounds in something approaching central positions. If a park in the center of a great city is selected, all the machines employed must be continually flying over the town and must descend to low altitudes when so doing. The lower the altitudes, the greater the risk of injury to individual or municipal property in the event of any accident. The owner of property in English law is also supposed to be the owner of the air above that property. Aerial transport is, however, impossible if this sort of right be insisted upon literally. A compromise which naturally suggests itself is that when an airplane flies at anything below some defined altitude, civil liability in the event of accident falls upon the owner of the aircraft. Any such regulation would be most difficult to impose because it involves setting apart very large areas for landing grounds. It appears that the landowner can be protected only by giving him a specific right of action for damages on the grounds of any nuisance resulting from breach of the regulations imposed.

Municipalities must interest themselves in all those regulations that apply to ascents and landings. If the municipality is not satisfied that such regulations provide the necessary measure of safety and the elimination of nuisance, then the only alternative is to place the airdromes and landing grounds well outside the centers of population, which would greatly decrease the utility of airplane services except for very long distances. The minimum distance is largely dependent on the positions chosen for landing grounds.

In the United States the whole subject is receiving wide attention, largely under the direction of the War Department, the policy of which was clearly set forth in a communication published in the *American City* for July. The Government is taking steps to secure the cooperation of certain cities in the establishment of landing fields primarily for the use of the Air

VI. MUNICIPAL GOVERNMENT

Service and aerial mail. The cities so invited are the following:

2 Albany, N. Y.	5 Waycross, Ga.
2 Buffalo, N. Y.	4 Mobile, Ala.
2 Rochester, N. Y.	5 Jacksonville, Fla.
4 New York City	2 Klsimmee, Fla.
2 Syracuse, N. Y.	2 Scranton, Pa.
2 Binghamton, N. Y.	2 Philadelphia, Pa.
3 Boston, Mass.	4 Pittsburgh, Pa.
2 Cleveland, Ohio	4 Uniontown, Pa.
3 Columbus, Ohio	4 New Orleans, La.
4 Chicago, Ill.	4 Baton Rouge, La.
5 Springfield, Ill.	4 Beaumont, Tex.
5 Kansas City, Mo.	5 Flatonia, Tex.
5 Topeka, Kan.	4 Texarkana, Tex.
3 Oklahoma City, Okla.	4 Sweetwater, Tex.
4 Richmond, Va.	2 El Paso, Tex.
4 Raleigh, N. C.	2 Columbus, N. M.
5 Winston-Salem, N. C.	5 San Francisco, Cal.
4 Columbus, S. C.	4 Fresno, Cal.
5 Charleston, S. C.	2 Bakersfield, Cal.
5 Savannah, Ga.	2 Los Angeles, Cal.
2 Atlanta, Ga.	5 Phoenix, Ariz.
2 Macon, Ga.	1 Tucson, Ariz.

NOTE: Municipal landing fields to which the War Department is obligated to furnish hangars per policy Director Air Service: 1, accepted; 2, field condition to be used, not yet accepted; 3, field available, not for regular use; 4, have been requested to establish field, no reply; 5, are working on field now, progress unknown; 6, not communicated with.

Kansas Municipalities for August contains an extended article by Arthur H. Heeder of Kansas City on "Municipal Landing Fields for Ameri-

can Cities," which contains important information and suggestions with reference to landing-field specifications. In Minneapolis and other cities the question of an air police force has been discussed, but so far no definite steps towards establishment have been taken.

Community Trusts. Within the past few years a series of community trusts has been authorized in various cities to accept gifts of money to carry out the civic purposes of public-spirited benefactors. The following is a list of the trusts thus far established:

St. Louis Community Trust	Jan. 21, 1915
Spokane Foundation	..... March 23, 1915
Chicago Community Trust	..... May 12, 1915
Milwaukee Foundation	..... May 24, 1915
Los Angeles Community Trust	..... June 1, 1915
Attleboro Foundation	..... June 15, 1915
Minneapolis Foundation	..... June 25, 1915
Permanent Charity Fund	..... Sept. 7, 1915
Houston Foundation (department of city established by ordinance)	..... Oct. 5, 1915
Detroit Community Trust	..... Dec. 7, 1915
Seattle Foundation	..... Dec. 20, 1915
Sioux City Common Fund	..... Dec. 28, 1915
Indianapolis Foundation	..... Jan. 5, 1916
Louisville Foundation	..... May 10, 1916
Rhode Island Foundation	..... June 13, 1916
Hawaiian Foundation	..... Dec. 29, 1916
New Orleans Community Trust	..... June 13, 1918
Philadelphia Foundation	..... Dec. 20, 1918

BIBLIOGRAPHY

- ARONOVICI, Carol.—*Americanization*. (St. Paul, Keller Publishing Co.)
- BROWN, Charles Carroll.—*Proceedings of the American Society for Municipal Improvements*. (Bloomington, Ill.)
- CAMMEN, Leon.—*Government Ownership of Public Utilities*. (New York, McDevitt-Wilson.)
- DOUGLASS, Harlan Paul.—*The Little Town*. (New York, Macmillan.)
- EVANS, Frederick N.—*Town Improvement*. (New York, Appleton.)
- FITZPATRICK, Edward A.—*Experts in City Government*. (New York, Appleton.)
- FOX, Dixon, Ryan.—*The Decline of Aristocracy in the Politics of New York*. (New York, Longmans, Green.)
- GEISER, Karl Frederick.—*Democracy v. Autocracy*. (New York, Heath.)
- HILL, Mabel, and DAVIS, Philip.—*Civics for New Americans*. (Boston, Houghton, Mifflin.)
- HOLLANDER, Jacob H.—*War Borrowing*. (New York, Macmillan.)
- "Housing Problems in America." (New York, National Housing Association.)
- HOWE, John B.—*The Eve of Election*. (New York, Macmillan.)
- LAVELL, Cecil P.—*Reconstruction and National Life*. (New York, Macmillan.)
- LIPPINCOTT, Isaac.—*Problems of Reconstruction*. (New York, Macmillan.)
- McKEEVER, William A.—*Man and the New Democracy*. (New York, Doran.)
- MOODY, Walter D.—*What of the City?* (Chicago, McClurg.)
- New Towns after the War*.—(Letchworth, England, Garden City Press.)
- TEITSWORTH, George Wilson.—*Democracy against Autocracy and Socialism*. (Minneapolis, Augsburg Publishing House.)
- THOMAS, A. G.—*Principles of Government Purchasing*. (New York, Appleton.)
- WEBER, G. A.—*Organized Efforts for the Improvement of Methods of Administration in the United States*. (New York, Appleton.)
- WILLIAMS, J. Foscher.—*The Reform of Political Representation*. (London, John Murray.)
- WILSON, Lucius E.—*Community Leadership*. (New York, American City Bureau.)
- WOODBURN, James Albert, and MORAN, Thomas Francis.—*The Citizen and the Republic*. (New York, Longmans, Green.)
- ZMRHAL, J. J.—*A Primer of Civics*. (Chicago, Society of the Colonial Dames.)

VI. MUNICIPAL GOVERNMENT

FINANCIAL STATISTICS OF CITIES OF POPULATION ABOVE 50,000

(In Thousands of Dollars)

The figures in this table are supplied by the Bureau of the Census from its report, "Financial Statistics of Cities Having a Population of over 50,000, 1915." They relate to the fiscal year ended June 30, 1915, or the first fiscal period prior thereto.

	Popu- lation, 1910	Assessed Valua- tion of Property	Total Tax Levy for Municipal Pur- poses	Total Re- venue Re- ceipts	Governmental Cost Payments			Net Debt
					For Ex- penses and Interest	For Out- lays	Total	
Akron, Ohio.....	49,467	23,495	2,574	3,811	2,237	1,169	3,406	3,104
Albany, N. Y.....	100,233	110,000	2,773	3,441	1,894	948	2,842	7,770
Allentown, Pa.....	51,913	58,138	895	1,084	890	612	1,501	1,521
Altoona, Pa.....	52,127	28,882	378	1,000	712	308	1,020	1,706
Atlanta, Ga.....	134,839	188,484	2,991	4,263	3,491	1,339	3,899	4,232
Atlantic City, N. J.....	46,150	90,534	1,598	2,044	1,164	782	1,946	7,446
Augusta, Ga.....	41,041	39,181	1,886	1,499	1,079	869	1,948	3,646
Baltimore, Md.....	358,483	504,483	11,390	18,390	15,477	3,214	18,691	27,822
Bayonne, N. J.....	55,543	65,483	1,276	2,075	2,084	424	2,508	3,646
Berkeley, Calif.....	40,434	47,078	886	1,477	1,109	284	1,393	1,304
Binghamton, N. Y.....	48,443	42,005	1,240	1,491	1,104	578	1,742	2,461
Birmingham, Ala.....	182,683	194,224	1,942	2,914	2,418	479	2,897	6,511
Boston, Mass.....	672,585	1,492,177	22,208	36,925	32,572	5,884	38,456	86,204
Bridgeport, Conn.....	107,054	185,235	3,791	3,662	3,019	2,646	5,665	7,850
Brooklyn, Mass.....	56,878	53,893	1,611	1,795	1,542	445	1,987	3,473
Buñalo, N. Y.....	423,715	508,543	13,488	19,418	16,562	2,934	19,496	34,879
Cambridge, Mass.....	104,869	181,529	2,653	3,491	3,253	321	3,574	6,355
Camden, N. J.....	94,538	85,449	1,184	2,132	2,027	569	2,596	4,836
Canton, Ohio.....	50,217	104,038	1,070	1,595	1,118	1,084	2,202	4,360
Charleston, S. C.....	58,833	22,814	881	1,200	1,007	1,460	2,467	5,462
Chattanooga, Tenn.....	44,604	36,281	637	930	855	252	1,107	3,889
Chicago, Ill.....	2,185,282	1,602,690	57,264	92,778	64,500	33,444	97,948	72,728
Cincinnati, Ohio.....	300,591	724,715	10,344	15,865	13,702	3,009	16,741	26,707
Cleveland, Ohio.....	500,603	1,198,714	18,189	23,912	18,777	8,444	27,131	72,866
Columbus, Ohio.....	181,511	311,725	3,338	4,429	4,090	1,062	6,852	9,824
Covington, Ky.....	98,270	32,788	387	997	847	299	1,146	2,620
Dallas, Tex.....	92,104	136,288	2,389	3,795	2,641	892	3,533	1,350
Dayton, Ohio.....	116,377	198,233	2,130	3,268	2,471	1,915	4,386	7,793
Denver, Colo.....	213,381	331,091	3,589	6,067	5,883	596	5,979	4,907
Des Moines, Iowa.....	80,308	48,371	2,345	3,707	3,239	2,119	4,349	3,449
Detroit, Mich.....	405,760	1,285,324	23,872	29,493	16,277	11,405	29,682	23,113
Duluth, Minn.....	78,466	98,328	2,018	3,138	2,103	769	2,923	2,779
East St. Louis, Ill.....	58,547	13,238	708	1,233	999	347	1,250	1,682
Elizabeth, N. J.....	73,409	77,514	1,060	1,827	1,434	304	1,738	2,640
El Paso, Tex.....	39,279	59,246	1,130	1,778	1,348	496	1,841	3,743
Erie, Pa.....	66,523	33,700	1,221	1,743	1,224	921	2,145	2,263
Evansville, Ind.....	60,647	46,737	1,134	1,473	1,172	389	1,562	1,873
Fall River, Mass.....	119,295	108,064	2,305	3,112	2,609	593	3,262	3,474
Flint, Mich.....	38,539	60,739	1,117	1,859	1,229	1,416	2,686	2,929
Fort Wayne, Ind.....	83,933	42,833	948	1,948	1,266	601	2,051	1,184
Fort Worth, Tex.....	73,312	68,112	1,264	1,867	1,491	474	1,965	5,888
Gary, Ind.....	16,802	29,347	1,004	1,778	1,312	917	1,725	892
Grand Rapids, Mich.....	112,371	172,802	2,200	3,335	2,781	704	3,485	4,181
Harrisburg, Pa.....	84,186	54,010	1,073	1,432	1,101	199	1,300	2,555
Hartford, Conn.....	98,915	135,880	2,478	4,058	3,585	1,881	5,466	11,173
Hoboken, N. J.....	70,224	79,748	1,144	2,062	1,606	578	2,184	4,110
Holyoke, Mass.....	37,739	68,791	1,041	2,407	2,000	215	2,215	2,971
Houston, Tex.....	78,860	131,572	2,201	3,015	2,692	2,162	4,854	14,088
Indianapolis, Ind.....	230,430	268,966	4,857	7,028	4,812	2,391	7,203	6,911
Jacksonville, Fla.....	57,099	59,000	919	2,700	1,727	902	2,719	3,017
Jersey City, N. J.....	207,779	326,493	5,658	9,441	8,302	1,600	9,902	25,550
Johnstown, Pa.....	55,482	53,420	811	1,408	832	301	1,133	1,293
Kalamazoo, Mich.....	39,437	49,874	671	1,404	754	150	907	1,023
Kansas City, Kans.....	42,331	95,436	1,400	3,346	2,292	746	3,038	3,977
Kansas City, Mo.....	248,781	223,174	6,053	12,223	9,761	3,860	12,621	12,606
Lancaster, Pa.....	47,227	29,830	477	727	605	144	750	1,584
Lawrence, Mass.....	85,592	84,103	1,242	2,124	1,902	238	2,140	3,596
Little Rock, Ark.....	45,341	89,872	704	1,042	741	103	844	1,452
Los Angeles, Calif.....	219,198	489,024	15,897	27,685	18,302	4,886	23,188	13,708
Louisville, Ky.....	228,928	220,803	4,988	7,001	4,407	1,144	5,551	12,200
Lowell, Mass.....	100,294	90,821	1,814	2,811	2,285	615	2,900	3,238
Lynn, Mass.....	89,336	91,789	1,740	2,000	2,232	522	2,754	4,181
Malden, Mass.....	44,404	39,848	780	1,207	1,108	109	1,217	1,344

VI. MUNICIPAL GOVERNMENT

FINANCIAL STATISTICS OF CITIES OF POPULATION ABOVE 50,000—Continued (In Thousands of Dollars)

	Popu- lation, 1910	Assessed Valua- tion of Property	Total Tax Levy for Municipal Pur- poses	Total Re- venue Re- ceipts	Governmental Cost Payments			Net Debt
					For Ex- penses and Interest	For Out- lays	Total	
Manchester, N. H....	70,063	79,463	1,039	1,578	1,402	401	1,803	1,539
Memphis, Tenn.....	131,105	122,595	2,145	3,526	2,969	237	3,206	13,228
Milwaukee, Wis.....	373,857	539,457	9,872	16,216	10,781	6,513	17,294	20,009
Minneapolis, Minn...	301,408	291,670	9,577	11,540	9,571	3,833	13,404	20,237
Mobile, Ala.....	51,521	35,912	395	945	778	29	807	2,930
Nashville, Tenn.....	110,364	83,345	1,250	2,423	2,168	492	2,660	7,328
Newark, N. J.....	347,469	433,939	10,212	16,470	13,942	3,138	17,080	39,924
New Bedford, Mass...	96,652	112,252	2,174	3,592	2,871	1,216	4,087	8,609
New Britain, Conn...	43,916	48,075	863	1,317	1,076	328	1,404	3,169
New Haven, Conn...	133,605	171,142	3,193	3,540	3,063	503	3,566	4,849
New Orleans, La....	339,075	255,541	5,622	9,216	7,683	2,083	9,766	44,222
New York, N. Y.....	4,766,883	8,673,705	176,843	242,874	209,338	28,998	238,336	1,005,055
Norfolk, Va.....	67,452	99,463	1,567	2,483	2,356	657	3,013	9,535
Oakland, Calif.....	150,174	148,571	3,343	5,296	4,338	624	4,962	8,827
Oklahoma City, Okl...	64,205	71,721	1,524	2,165	1,363	1,019	2,382	5,643
Omaha, Nebr.....	124,096	50,728	4,026	5,490	4,336	1,794	6,130	18,171
Pasadena, Calif.....	30,201	61,486	1,121	2,122	1,457	352	1,809	2,512
Passaic, N. J.....	54,773	52,064	727	1,129	1,055	232	1,287	2,886
Paterson, N. J.....	125,600	113,559	1,577	2,656	2,281	725	3,006	5,418
Pawtucket, R. I.....	51,622	67,032	1,057	1,666	1,390	333	1,723	5,588
Peoria, Ill.....	66,950	24,841	1,280	1,743	1,321	484	1,805	1,043
Philadelphia, Pa....	1,549,008	2,433,253	43,554	53,577	46,445	19,711	66,156	136,184
Pittsburgh, Pa.....	533,905	802,571	19,666	23,444	18,775	4,444	23,219	54,554
Portland, Me.....	58,571	76,927	1,229	2,043	1,794	507	2,301	7,557
Portland, Oreg.....	207,214	285,126	6,979	11,382	7,500	2,505	10,005	20,326
Providence, R. I....	224,326	388,732	5,388	7,146	5,816	1,885	7,701	14,917
Pueblo, Colo.....	44,395	31,730	698	1,199	953	184	1,137	2,338
Reading, Pa.....	96,071	63,742	1,020	1,592	1,265	180	1,445	2,151
Richmond, Va.....	127,628	198,229	2,610	4,628	3,709	793	4,502	12,570
Rochester, N. Y....	218,149	268,119	5,431	8,387	7,212	2,194	9,406	14,217
Rockford, Ill.....	45,401	23,062	985	1,476	969	583	1,552	659
Sacramento, Calif...	44,696	69,699	1,301	2,438	1,755	932	2,687	5,192
Saginaw, Mich.....	50,510	47,763	970	1,332	946	82	1,028	840
Salt Lake City, Utah	92,777	177,466	2,252	3,741	2,751	898	3,649	6,873
San Antonio, Tex....	96,614	110,972	2,438	2,811	2,294	478	2,772	5,571
San Diego, Calif....	39,578	84,660	2,053	3,166	2,263	521	2,784	10,397
San Francisco, Calif.	416,912	554,750	12,704	20,139	15,322	6,041	21,363	43,276
Savannah, Ga.....	65,064	61,271	1,021	1,612	1,362	463	1,825	3,655
Schenectady, N. Y...	72,826	66,743	1,877	2,481	1,875	266	2,141	4,460
Scranton, Pa.....	129,867	104,122	2,002	2,408	2,115	200	2,315	2,977
Seattle, Wash.....	237,194	216,627	9,762	15,861	11,975	5,431	17,406	35,024
Sioux City, Iowa....	47,828	19,442	1,237	1,867	1,080	648	1,728	1,495
Somerville, Mass...	77,236	78,935	1,481	2,129	1,843	345	2,188	1,758
South Bend, Ind....	53,684	35,623	1,019	1,466	950	625	1,575	1,128
Spokane, Wash.....	104,402	81,413	1,988	3,677	2,707	424	3,131	8,256
Springfield, Ill....	51,678	15,734	993	1,286	1,005	725	1,730	1,421
Springfield, Mass...	88,926	195,884	2,901	4,581	3,566	962	4,528	7,697
Springfield, Ohio...	46,921	67,755	787	1,189	932	566	1,498	2,446
St. Joseph, Mo.....	77,403	44,372	1,178	1,689	1,207	402	1,609	2,393
St. Louis, Mo.....	687,029	653,698	14,185	24,494	18,891	5,068	23,959	17,488
St. Paul, Minn.....	214,744	191,334	4,257	6,915	5,513	2,070	7,583	10,404
Syracuse, N. Y.....	137,249	158,189	3,118	4,652	3,667	1,456	5,123	10,368
Tacoma, Wash.....	83,743	55,398	1,580	3,591	2,377	773	3,150	9,252
Tampa, Fla.....	37,782	31,069	771	1,229	927	158	1,085	3,157
Terre Haute, Ind....	58,157	40,301	883	1,125	967	264	1,231	1,250
Toledo, Ohio.....	168,497	323,034	3,902	5,632	4,178	1,457	5,635	12,560
Trenton, N. J.....	96,815	92,208	1,494	2,765	2,408	503	2,911	3,087
Troy, N. Y.....	76,813	61,824	1,383	2,001	1,691	150	1,841	4,559
Utica, N. Y.....	74,119	52,794	1,352	1,656	1,469	432	1,901	2,786
Washington, D. C...	331,069	750,240	7,690	17,664	11,206	3,577	14,783	3,908
Waterbury, Conn....	73,141	104,903	1,842	2,277	1,814	757	2,571	6,183
Wichita, Kans.....	52,450	70,505	1,191	1,548	871	366	1,237	1,753
Wilkes-Barre, Pa....	67,105	69,846	1,013	1,298	1,017	426	1,443	2,371
Wilmington, Del....	87,411	87,459	1,546	1,700	1,475	611	2,086	6,290
Worcester, Mass....	145,986	185,517	3,105	5,697	4,429	1,114	5,534	7,321
Yonkers, N. Y.....	79,803	126,355	3,040	3,941	3,343	844	4,187	8,959
York, Pa.....	44,750	26,876	453	645	472	86	558	1,137
Youngstown, Ohio...	79,066	198,083	2,143	2,942	1,998	988	2,986	5,697

VII. TERRITORIES AND DEPENDENCIES

FRANK MCINTYRE

ALASKA

General Conditions.—In addition to the trials of war visited upon Alaska, the territory has been the victim of a number of disasters. Floods caused great destruction in several towns; fire wiped out a large part of the business section of Fairbanks; influenza swept the coastal regions (see *infra*); and in a wreck of the steamer *Princess Sophia* 350 lives were lost. The most serious of these disasters was the scourge of influenza. Chiefly because of war conditions, transportation to and in the territory has been in a most chaotic condition; the mail service, too, has been inadequate, all of which retards development.

Immigration became noticeable after the signing of the armistice, and indications point to a slight increase in immigration as a result of Army demobilization and the closing of war-time industries. There are probably 23,000 natives now in Alaska out of a total population of about 55,000. Due largely to the closing of trans-Atlantic travel to pleasure-seekers, more tourists visited Alaska in the summer of 1919 than ever before.

A sub-office of the U. S. Geological Survey was opened at Anchorage on July 1, 1918.

The Governor reports that on the whole the bone-dry law has been successful, and its beneficial results are seen everywhere. Lack of appropriations has prevented its rigid enforcement. The Governor reports that one of the most crying needs of Alaska is police protection, and he advocates the establishment of a uniformed constabulary.

In the Matanuska Valley splendid results have been obtained from farming, and it is thought that it can be

successfully carried on in many parts of Alaska. The Governor's recommendations include the extension of the Federal Farm Loan Act to Alaska, assistance to farmers by the loan of money and cattle, consolidation of all governmental authority, amendment of the organic Act to grant full territorial powers of legislation to Alaska, and increased appropriations for several branches of work.

Education and Health.—The health and educational programme for the natives of Alaska contemplates, first, the elimination of communicable and hereditary diseases and, second, the training of the young to useful trades. The natives are peculiarly susceptible to epidemics. It is estimated that 1,500 deaths, chiefly among the natives, on the Seward Peninsula and vicinity resulted from influenza. The present staff of nurses is inadequate. In September, 1918, the native hospital at Juneau was made uninhabitable by the Gold Creek flood, which caused a damage of over \$7,000. It continued operations during the year by renting the Juneau General Hospital building. A hospital is being erected at Noorvik, on the Kobuk River. A tuberculosis sanitarium at Haines was opened, but it has not been particularly successful owing to the prejudices of the natives against such institutions.

The 15 white schools in incorporated towns employed 87 teachers and showed an increase in the total enrollment from 1,847 to 1,955. The 47 white and mixed schools outside of incorporated towns employed 60 teachers and had an enrollment of 1,209. The schools for native children are supported by Federal appropriations. During the year 65 such schools were maintained with a total enrollment of approximately 3,600.

Of the 123 teachers employed, 23 are natives. Besides the schools maintained by the Bureau of Education and by the territory, there are a number of splendid mission schools, the more notable ones being the Sheldon Jackson School at Sitka and the Holy Cross School of the lower Yukon.

Railroads.—The Government railroad project has been greatly handicapped by the shortage of labor, but with the return of soldiers and others from industries in the United States these conditions are improving. On the main line north of Anchorage the track has been extended to Talkeetna, and it is now possible to ship freight to that point from Seward and to Chickaloon in the coal fields. The first shipment of coal (15 carloads) from the Matanuska coal fields near Anchorage was loaded at Seward on Nov. 18 *en route* to Bremerton, Wash. Between Talkeetna and the crossing of the Susitna River 27 miles has been graded and is ready for track. On the Fairbanks division the track has been extended southward from Nenana a distance of 48 miles to a point where coal is being mined in appreciable quantities. (See also XX, *Civil Engineering*.)

Roads.—The total expended by the Alaska Road Commission for all construction and maintenance to June 30, 1919, was \$4,920,655.67. Of this amount, \$299,024.26 was expended during the fiscal year ended June 30, 1919. The total mileage constructed by the Commission was 1,031 miles of wagon roads, 673 miles of sled roads, and 3,223 miles of trail. Until more funds are available the Commission will be greatly restricted in extending its present system.

Commerce and Industries.—Fishing has now become probably the most important industry of coastal Alaska. Canneries, salteries, and cold-storage plants are increasing in number, but fear is expressed that the enormous catches of late years will soon result in a depletion of the fisheries. The products of the salmon industry materially increased in 1918, both in quantity and value. The halibut industry dropped from second to third place, the value being exceeded by that of the herring industry. Commercial killing of fur seals was re-

sumed on the Pribilof Islands, and there were taken a total of 34,890 skins. Two sales of dressed, dyed, and machined sealskins were held at St. Louis in 1918, 8,100 skins being sold for \$375,385. (See also XVI, *Fisheries*.)

Owing to lack of transportation, shortage of labor, and the high cost of supplies, mining has been conducted under adverse conditions, the gold placers being the principal sufferers. The value of the mineral output is estimated at \$28,253,961, a decrease of almost \$12,500,000 from the value in 1917 and the smallest since 1904. The output of gold from mines decreased from \$14,650,000 to \$9,480,952, and of copper from \$24,240,000 to \$17,098,653. There was an increase of more than 60 per cent. in the production of mineral fuels and a slight increase in chrome ore. The output of coal was 75,606 tons, as compared with 53,955 tons in 1917. A new item among Alaska mineral products is palladium, from the copper ore of the Salt Chuck mine. Discoveries of large deposits of lime rock 90 per cent. pure have been reported.

There are now 125,000 reindeer in Alaska, 70 per cent. of which are owned by the natives. It is thought that reindeer meat can soon be placed on the market in the United States in such quantities and at such a low cost as to compete with beef, mutton, and pork. Musk-oxen, which were in northern Alaska in the fifties, have recently again occupied those regions. Because of their great value as an article of food and their supply of wool and milk, it is proposed to import a herd for breeding and thus reestablish an industry of future value.

Trade between Alaska and northern Siberia is steadily increasing. The total commerce with the United States in 1919 was \$117,018,835, a decrease of \$14,748,953 from the 1918 figures. Seafoods exported increased \$5,144,171, but there was a decrease in copper of \$5,978,824 and in domestic and foreign gold and silver of \$5,826,760. There was an increase in the coal imported, but decreases are shown in lumber, liquors, iron and steel, and breadstuffs. Shipments

VII. TERRITORIES AND DEPENDENCIES

from the United States decreased to \$8,736,041. The grand total of commerce of Alaska reached the sum of \$119,427,605, as compared with \$135,115,025 for 1918. The following table gives the shipments from Alaska to the United States for the last three fiscal years (see also XIX, *External Commerce*):

	1917	1918	1919
Copper ..	\$33,098,190	\$20,217,635	\$14,238,811
Fish	23,833,662	46,059,072	51,203,243
Gold	16,195,635	12,416,660	8,623,924
All other	3,887,177	6,030,462	7,226,940

GUAM

General Conditions.—Capt. Roy C. Smith, U. S. Navy, was Governor of Guam and commandant of the Naval Station until Nov. 15, 1918, when he was relieved by Capt. William W. Gilmer, U. S. Navy. Assets of the island Government on June 30, 1919, exceeded the liabilities by \$31,214.00. The deposits of the Bank of Guam increased during the fiscal year 1919 from \$110,423.25 to \$122,385.73. Although the natives are poor, there is no poorhouse in Guam. The few destitute natives are allowed a stipulated sum from the island Government. The Guam militia, consisting of 921 men, is now recognized by the Navy Department as a part of the Naval Militia and has been assigned as a special reserve for the defense of Guam; as yet it receives no compensation. The 28 New Guinea men prisoners of war (*A. Y. B.*, 1918, p. 272) remained in Guam until Jan. 2, 1919, when they left on a Japanese schooner for New Guinea. The native population has decreased from 14,124 to 13,623, the decrease being due chiefly to the epidemic of influenza. The population other than native consists of 542 foreign-born residents and 470 at the Naval Station. The Guam Congress continues to be of material assistance in enabling the Governor to get the viewpoint of the native population on many subjects.

The Governor repeats the recommendations made in 1918 for settling the matter of citizenship, revision of the old Spanish code, a homestead law, establishment of rural credits for benefitting agriculture, building granaries and storehouses, and establishing

stock and agricultural farms, and the continuation of the annual appropriation for roads until the system is completed, and adds, among other items, new quarters for the governor, new marine barracks, a station ship, and an additional receiving station for the Naval Radio Station.

Agricultural and Economic Conditions.—The situation with respect to agriculture and food has improved very much because of a compulsory labor law adopted as a war measure after the typhoon of July 6, 1918, and a considerably increased area is under cultivation. Every effort is being made to increase the agricultural products of the island in order to make it as nearly self-sustaining as possible, but without good roads and the general introduction of farming implements this will be practically unattainable. At the end of the fiscal year 1919 there were 48.5 miles of improved road and 17 miles of passable road. As much more is needed to complete the system. Plows and farming implements are being slowly introduced. The coconut is a large factor in the food of the people and is the chief money crop of the Island through conversion of its fruit into copra. A number of coffee trees have been planted, but it will be several years before there will be sufficient coffee to make exportation profitable. The island Government market was completed during the year and is now opened for the sale of produce.

Education.—Vocational training has been continued and expanded, and the work done in 1919 showed decided improvement over the preceding year. Special attention is given to English, but the children speak Chamarro at home and progress is far from satisfactory. The cost of the schools to the island Government was \$19,049.62. The school age is from seven to 12, but for boys only, and for physical training only, it extends to 16. Owing to the lack of school houses and teachers, the schools hold sessions of half a day only, the boys attending the morning session and the girls the afternoon session. The school statistics are:

Number of pupils enrolled	2,061
Average daily attendance	1,630
Total teachers and substitutes ...	50
Number of schools	13

Sanitation.—The general sanitary conditions have perceptibly improved. The greatest menace to the health of the island continues to be intestinal parasites. Work started by the Rockefeller Foundation is continued. All school children and some children under school age are sent to the hospital regularly once a year and treated. One case of leprosy was transferred to Cullion, P. I., in May, 1919, and so far as known there are no lepers in Guam at present. There were 330 cases of gangosa under observation. Tuberculosis is extensive on the island.

Commerce and Industries.—Imports for the fiscal year 1919 amounted to \$328,571.14, a decrease of \$29,575.77 from the figures of 1918. Those from the Philippine Islands nearly doubled, but there was a decrease in imports from all other countries. The exports, amounting to \$95,770.56, decreased from \$131,757.91 in 1918. The decrease in trade (exports and imports) with the United States and with Japan amounted to about the same, approximately \$47,000.

HAWAII

General Conditions.—Conditions throughout the Territory of Hawaii have been generally good during the year. Hawaii did not escape the hardships due to the increased cost of living, but they were lessened by the mild climate of the islands, the home production of foodstuffs, the lessons of thrift that the war taught, and the liberal wages generally paid. Serious congestion in passenger travel was experienced owing to a number of vessels being in war service in the Atlantic Ocean. Since the prohibition act went into effect on Aug. 20, 1918, there has been a remarkable decrease in crime.

The new concrete dry dock at Pearl Harbor, one of the largest in the world, was officially opened by the Secretary of the Navy on Aug. 21, 1919. Plans are being made to enlarge Honolulu harbor by including Kalihi Channel and possibly to acquire title to Sand Island on the western side of the harbor.

At the close of the year there were 853 domestic corporations, an increase of 61, and 152 foreign corporations, as

compared with 144 in the preceding year. Twenty-six banks were in operation during the year. Bank deposits increased by \$836,421.48. The estimated population, including that of the Army and Navy, on June 30, 1919, was 263,666. The strength of the National Guard of Hawaii on that date was, officers, 26, enlisted men, 688. There were taken up during the year 552 homestead lots covering an area of 8,877 acres.

Legislation.—The principal business enacted by the legislature was financial. Of the 242 acts approved, 94 involved the expenditure of money from the general funds. The legislature enacted a loan bill providing for public improvements to the amount of \$4,901,698, more than half of which is for wharf and harbor improvements, and adopted resolutions recommending that the Governor set aside lands for nine public parks and providing for the protection of forest reserves and for calling a Pan-Pacific Congress in Honolulu in 1920-21. Other measures included requests of Congress for statehood, for the amendment of the organic Act with regard to homesteading, and for extension to the islands of the benefits of the Reclamation Act and the Federal Farm Loan Act.

Education and Health.—The number of pupils enrolled in the public schools in 1919 was 36,102, an increase of 5.1 per cent. over the preceding year. The number of public schools remains the same, 168, in addition to which there are 61 private schools accommodating 7,169 pupils. There are employed in the public schools 1,063 teachers. It is found that the military experience of the students of the College of Hawaii who were enrolled in the Students Army Training Corps has had much educational value. The College of Hawaii will, by an Act of the legislature, be changed to a university.

The health of the territory was good. The percentage of deaths, especially from influenza, was much less than in most communities on the mainland. The total number of deaths increased 41 over the number for the preceding year. Of the 4,051 deaths, 1,077 were of infants under one year of age, and 612 were from influenza.

VII. TERRITORIES AND DEPENDENCIES

The annual death rate per thousand was 15.36. No case of human plague was reported. Tuberculosis, leprosy, and measles increased. Despite a constant fight against the disease, tuberculosis continues to increase steadily. The 1919 legislature practically doubled the appropriations of the last two years. The number of lepers on June 30 was 611, an increase of three over the preceding year. The principal treatment for leprosy still consists of chaulmoogra oil (*A. Y. B.*, 1916, pp. 238, 241, although newer treatments are being tried.

Agricultural and Economic Conditions.—Sugar and pineapples continue to be the main crops of the islands. The yield of sugar for 1919 is estimated at 600,000 tons, an increase of about 43,000 tons over 1918, and that of pineapples, 5,000,000 cases. Total imports and exports increased from \$132,347,810 in 1918 to \$138,993,814. Over a \$3,000,000 increase is noted in the exports both to Canada and to the United States. The following table shows the value of the principal exports during the last three fiscal years (see also XIX, *External Commerce*):

	1917	1918	1919
Sugar	\$62,743,272	\$64,109,967	\$68,497,289
Coffee	391,568	466,689	1,184,148
Fruits and nuts (mostly pineapples)	8,355,395	8,640,838	12,116,344

PHILIPPINE ISLANDS

Political Conditions.—The attitude of the people of the Philippine Islands during the war was most gratifying. Every assistance required by the home Government was given with enthusiasm and unstinted devotion. During the war all talk of independence ceased, but after the signing of the armistice the national sentiment of the Filipinos again took form in the appointment of a commission of leading citizens of the Islands to present to the United States Congress their request for independence. The commission, consisting of 35 members, visited the United States in the spring of 1919 and was granted hearings before the Joint Committee of the Senate and House of Representatives. The commission produced a good impression in the United States, and it is felt that its visit strengthened the ties of friendship and good understanding.

The fourth Philippine legislature passed at its third session 86 bills, among the most important being an Act appropriating \$15,000,000 for the extension of free elementary instruction to all children of school age (see *infra*) and Acts amending the corporation law and the income-tax law and creating the National Development Co., the National Petroleum Co., the National Cement Co., and the National Iron Co.

Economic Conditions.—The Governor-General reports that at the end of

1918 the Government finances were in a more firm and stable condition than at any period in the history of the Philippines. The liquid capital of the Insular Government increased during the year in the sum of \$5,597,030. The receipts of the Manila Railroad Co. from operation increased by \$1,111,680.54 over those of 1917. The National Coal Co. made little headway in beginning operations, because of epidemics of malaria among the laborers, but the Governor-General believes that its work will solve the fuel problem of the Philippines and greatly increase the wealth and prosperity of the country. The year 1918 was a banner year for agriculture in the Philippines.

Education.—The progress of the Bureau of Education, though fraught with many difficulties, such as shortage of teachers, the influenza epidemic, and lack of appropriations, was continued. The erection of several new normal-school buildings marked the beginning of a proposed extension of normal-school instruction, to be continuous until every section of the Islands will have a well equipped institution for the training of teachers. Distinct advances were also made in the plan of farm schools for every province. Special efforts were made to extend the work in gardening and farming, and the number of home gardens in 1917-18 (103,668) was almost double the number for the preceding year. The ideal of physical training

VII. TERRITORIES AND DEPENDENCIES

for all students has been steadily worked for. The Bureau of Education took the lead in all war activities.

The most important event of the year was the passage of an Act providing for the spending of \$15,000,000 during the next five years (in addition to regular appropriations) for school purposes. This will mean that free elementary instruction will be placed within the reach of every child of school age in the Islands. To execute this task will require the training of 12,000 more teachers, the securing of several thousand more building sites, and the erection of several thousand more school buildings.

The use of English continues to spread. The number of English periodicals with little or no circulation other than among Filipinos is indicative of the trend of events. A surprisingly large number of young men brought up in the public schools since American occupation are now active in public and political life, and it is predicted that in three more years the majority of the members of both houses of the Philippine Legislature will be English-speaking.

Realizing the importance of bringing the non-Christians up to the plane of culture of the rest of the Filipino people, the legislature appropriated liberally for the education of those inhabitants. The number of schools for non-Christians has increased from 256 in 1912 to 1,121 in 1918. These people have responded to the efforts being made to give them educational opportunities; some have built schools at their own expense and have shown their interest in other ways. The Moros have perhaps not been as responsive as some of the other groups.

School statistics for 1917 and 1918 are as follows:

	1917	1918
Number of schools ..	4,702	4,936
Number of teachers...	12,303	14,523
Number of American teachers	477	368
Annual enrollment ...	675,997	671,398

Sanitation.—The year 1918 was marked by the appearance of epidemics of the most serious character. Smallpox and influenza were prevalent in every province. During the year 40,126 cases of smallpox and 12,951

deaths were reported from the provinces, and in Manila, which had been free from smallpox since June, 1909, there were registered 1,326 cases and 869 deaths. An intensive vaccinating campaign, 414,410 vaccinations being performed in Manila and 3,368,477 in the provinces, brought this disease under control during July. There were outbreaks of influenza during May and June and again during October and November, 1918. The deaths due to this epidemic numbered about 70,315. It is estimated that an average of 40 per cent. of the population of the Islands were affected and that two per cent. of the cases were followed by death. Cholera was present, though it was less severe than in 1917. The deaths from this disease numbered 5,168, 107 of which occurred in Manila. Hospitals throughout the Islands were overcrowded. More than 50 temporary emergency hospitals were established in the provinces where epidemics reached alarming proportions. During the year 1,168 cases of tuberculosis were reported in Manila. On Sept. 1, 1918, the Zamboanga Hospital was opened; a large hospital at Davao is under construction. In spite of the extra work required of the medical staff due to epidemics, satisfactory progress was made by the Health Service, especially good results having been secured with regard to water supplies and sewage disposal, in the organization of women's clubs and societies for the protection of infants, and in organizing the sanitary service in various provinces.

Commerce and Industries.—Trade with England and France was heavily checked by the war, but that with Japan, China, Spain, French East-Indies and Australia increased materially. That with the United States increased tremendously as compared with previous years. The total value of foreign trade amounted to \$233,793,693 in 1918, as compared with \$161,401,337 for the preceding year. The increase was due to greater home production of hemp, coconut oil, sugar and tobacco products. In these four items alone an increase of \$41,590,266 over the exports of 1917 is recorded. Rapid progress has been made in the coconut-oil industry, exports increasing, both in quantity and value, al-

VII. TERRITORIES AND DEPENDENCIES

most 200 per cent. over those for 1917 and taking second place in the list of principal exports. Hemp, again heads the list, sugar falls to third place, and copra, which ranked fourth in 1917, was pushed down to fifth place, having been supplanted by tobacco products in the fourth place. The average value received for cigars was the highest in the history of the Philippine Islands. There was a gratifying increase in the value of embroideries, almost all of which went to the United States.

Imports increased almost 50 per cent. over those of 1917. The principal items were cotton goods, iron and steel, and rice, the net gain in these three items being \$19,373,903. The United States ranked first among the countries furnishing imports, with Japan second, the United States registering an increase of 56 per cent. and Japan 59 per cent. The following table shows the value of exports and imports in the trade with the United States and other countries for the last four years:

Twelve Months ending December	IMPORTS		EXPORTS	
	From the United States	From other Countries	To the United States	To Other Countries
1915	\$26,381,069	\$22,931,114	\$23,653,211	\$30,159,793
1916	22,862,673	22,633,665	35,648,133	34,289,050
1917	37,620,648	28,176,383	63,234,358	32,369,948
1918	58,824,611	39,774,600	89,146,918	46,047,564

PORTO RICO

Economic and Political Conditions.

—The most destructive earthquake in the history of Porto Rico occurred on Oct. 11, 1918 (*A. Y. B.*, 1918, p. 277). This was followed by others, two of them, those of Oct. 24 and Nov. 12, being almost as severe as the first. The casualties and property losses caused by the earthquakes were as follows: persons killed outright, 116; persons injured, 241; property losses, \$3,472,159. This disaster was quickly followed by the widespread epidemic of influenza.

In spite of these difficulties the island was, in general, prosperous. Sixty-three new corporations (31 more than the preceding year) with a paid-up capital stock of \$18,639,000 were organized and authorized to transact business, and six foreign corporations with a total capital stock of \$7,925,000 were registered for the purpose of doing business in Porto Rico. Three new banks were organized. The aggregate deposits of all the recognized banking institutions increased by nearly \$5,000,000 over the figures of the preceding year, which were the largest ever recorded. There was an increase of more than \$1,000,000 in the aggregate loans.

A special session of the legislature was called on Nov. 26, 1918, to provide measures for the relief of earthquake and epidemic sufferers. The second

regular session assembled on Feb. 10, 1919, and continued until July 6. Eighty-five acts and 36 joint resolutions were passed and approved by the governor, including several important labor laws and laws for increasing the revenues by increased income and excise taxes.

The road-building programme has been pushed. During the year 15 new bridges and 41.3 km. of new roads were completed. The total expenditures during the year for the maintenance, repair, and construction of roads and bridges amounted to \$1,167,601. The Governor reports that the irrigation system has proved a great success and has excited public interest in new projects for the extension of public irrigation to other sections of the island. At the regular session of the legislature the issue of \$3,000,000 of bonds was authorized for a new irrigation project covering about 15,000,000 acres in the north-western corner of the island and of \$1,000,000 of bonds for the construction of roads and bridges.

The Governor repeats his three recommendations made in 1918 for the speedy beginning of the dredging of San Juan harbor, the extension to Porto Rico of the Federal Farm Loan Act, and a liberal appropriation by Congress to help educate the illiterate. In April, 1919, a large delegation of Congressmen visited Porto Rico upon invitation of the local legislature.

VII. TERRITORIES AND DEPENDENCIES

Education.—The Department of Education lost a number of teachers by their entry into military service and because of low salaries. Its work was seriously interrupted by the earthquake and the influenza epidemic. Notwithstanding these handicaps, the work accomplished was creditable, and the total enrollment increased 18,000 over the preceding year, being 160,794; in addition, 5,722 attended private schools. The number of teachers employed was 2,984, of whom all but 148 were native Porto Ricans. Twenty new school buildings were completed during the year, 24 more are under construction, and 26 new school sites were acquired. The number of buildings used for schools was 1,724, 529 of which were public property and 1,195 were rented. The total expenditure for school work was \$2,467,703.29. Although statistics show substantial progress, only a beginning has been made in the task of educating the people. The situation is thus described by the Governor in his annual report for 1919:

Much has been already accomplished, wide popular interest has been created in the education of the children, and an excellent foundation has been laid upon which to build an adequate modern school system for all the children of the Island. The need now is for larger funds for every phase of educational work. The last Legislature rose to the occasion and increased appropriations so that next year the expenditures from all local sources will reach about \$3,000,000. If Congress would supplement the local effort by a generous appropriation of Federal funds, rapid progress could be made.

Sanitation.—The regular work of the Department of Health was also greatly interrupted by efforts to control the influenza. Of the total number of deaths in the fiscal year ending June 30, 1919, 39,974, those due to the epidemic were 10,888, which increased the death rate from 27.71 per thousand in 1918 to 31.75. Seventy-two per cent. of the total deaths was due to tuberculosis, malaria, hookworm, and infant mortality. The tuberculosis sanitarium is nearing completion, and other hospitals are being constructed. The figures for infant mortality, though slightly below those for the two preceding years, are distressingly high. Much attention is being devoted to this subject. The excess of births over deaths was 13,374,

notwithstanding the severe losses of the epidemic.

Commerce and Industries.—The external trade in the fiscal year 1919 reached a total of \$141,869,400, being \$4,223,096 in excess of the record-breaking figures of the preceding year. The trade balance in favor of Porto Rico was \$17,095,680. Exports increased about five and one-half million dollars over those of the preceding year, about half a million dollars being due to the increase in the price of coffee, though the crop itself was the smallest since 1905. There was an increase in sugar shipments, some of which, however, represented part of the 1918 crop which was held over awaiting shipment. Sugar remains the chief export, though its percentage of the total value of exports has dropped from 69 per cent. in 1916 to a little more than 60 per cent. in 1919. The production of 1919 was 47,795 tons less than the crop of 1918. There were notable increases in the exportations of coconuts and honey. Other articles of export decreased about a million and a half dollars, due to the lack of transportation facilities for fruit shipments and to the decline in the value of cigar and tobacco shipments.

Imports decreased nearly a million dollars, principally in the items of cotton goods, iron and steel manufactures, fertilizers, leather goods, and meats, and of beans and peas, due to home production. Increases were noted in importations of rice and wheat flour, fish, and dairy products.

The total exports for the last three fiscal years are shown in the following table:

	1917	1918	1919
Sugar ..	\$80,970,917	\$41,362,229	\$48,132,419
Coffee ..	5,879,652	5,505,316	6,065,573
Tobacco	3,459,569	16,142,555	15,188,678
Fruits ..	11,723,712	3,628,214	2,898,580
All other	5,892,081	7,655,708	7,210,790
Total ..	\$54,015,903	\$74,294,022	\$79,496,040

American goods comprised 93 per cent. of total purchases, and 89 per cent. of all shipments were to the United States, as compared with 89 per cent. and 80 per cent., respectively, in 1914, the last year before the war.

VIRGIN ISLANDS

General Conditions.—A change of administration took place in the Virgin Islands on April 8, 1919, when Rear-Adm. James H. Oliver, U. S. N., was relieved by Rear-Adm. Joseph W. Oman, U. S. N., as governor.

The Governor's report shows that many minor improvements were made during the fiscal year ending June 30, 1919, but that no active work along the lines of expansion has been possible owing to lack of funds. Pressing problems are an increase of educational facilities, maintenance of efficient police protection, improvements in the medical service and sanitation service, the dredging of St. Thomas Harbor, and the establishment of public libraries and of a poor farm to care for the paupers. During the wa many additional cases of poverty were added to the already large number of poor, and it is estimated that fully 2,500 persons, 10 per cent. of the population, may be classed as paupers.

The Governor reports that the amount annually appropriated by Congress has not permitted of much improvement over the old order of things, and there is urgent need for additional funds if the Government is to be run in a manner approaching American standards. He states also that there is growing unrest among the inhabitants at the failure to change the old Danish laws, continued in force by Congress under the act of March 3, 1917, and that work is progressing on the drafting of a modern American code. As to this he says: "The inhabitants as a whole welcomed the change of sovereignty in the belief and hope that conditions would be improved, but the time is rapidly approaching when unrest and dissatisfaction will prevail unless something more tangible is done." As evidence of this unrest he refers to the testimony before a committee of Congress in August, 1919. The report of this committee contained the following:

The Americans, since their occupation, have done considerable work along lines of sanitation. Apparently, there has been no improvement as to education. The people of the islands feel that they have been neglected by the United States; that when the American flag went up in the Virgin Islands, it should have been fol-

lowed by American laws, customs, and ideals as soon as possible. These people are pleading to be Americanized. There are great possibilities in these islands. They should no longer be neglected.

The most important agriculture in the islands is sugar, of which approximately 10,000 tons was exported in the fiscal year. During the year the Government succeeded in opening the Porto Rican market to cattle from the Virgin Islands. About \$30,000 worth of cattle were exported, and it is thought that the cattle-raising industry will eventually become an important one. Exportation of cattle to Porto Rico was formerly prohibited on the ground that the Virgin Islands were in the tick-infested area.

Education.—Some improvement is noted in the public schools during the fiscal year 1919, although the department was greatly handicapped by the lack of funds. During the year two assistant directors of education were appointed, two new school buildings and a supply of maps, books, etc., were acquired, and a plan was perfected whereby a teacher's training class, composed of natives, has been organized. The most urgent needs are high schools and reform or training schools. There are over 3,000 school children, which represent about one-eighth of the population.

Health and Sanitation.—Perhaps the most important work accomplished since the transfer of the islands to the United States has been in the department of health. In St. Thomas the death rate has decreased from 39.4 to 23.9 per 1,000. Similar favorable conditions exist in the municipality of St. Croix. Marked attention has been paid to infant-welfare work, and the infant mortality per 1,000 births shows a striking reduction from 248 in 1917 to 149 in 1918. Food inspection received attention during the year, and much stress was laid on mosquito eradication. A successful undertaking has been the conducting of a training school for native nurses at each municipal hospital. During the fiscal year the American Red Cross completely equipped the municipal hospitals with up-to-date furniture, surgical instruments, and laboratory appliances. There is an urgent necessity for increased hospital facilities.

VIII. LAW AND JURISPRUDENCE

FRANCIS M. BUEDECK

FOREIGN JURISPRUDENCE

Legislation.—The volume of peace legislation during the year in Great Britain is meager. Ch. 52 (8 and 9 George V) prohibits all persons from searching or boring for or getting petroleum within the United Kingdom unless acting on behalf of the Government or holding a license under the Act. Exceptions are made in favor of those who were using any supply of natural gas for commercial purposes when the Act was passed and of those who in the course of mining or other lawful operations might set petroleum free. By Ch. 59 power to determine the date of the termination of the Great War is given to His Majesty in Council, the only limitation being that "the date so declared shall be as nearly as may be the date of exchange or deposit of ratifications of the treaty or treaties of peace." This limitation is minimized by the annexed provision that "the date declared shall be conclusive for all purposes of this Act." Chapter 3 (9 George V) confers upon a Secretary of State power to regulate air navigation over the British Islands and the territorial waters adjacent thereto and adds various provisions to the Aerial Navigation Act of 1911 and 1913.

Judicial Decisions: Privy Council Decisions.—The high political importance of topics which fall to the Privy Council for examination is illustrated by the case *In re Southern Rhodesia* (1919 A. C. 211, 88 L. J. P. C. 1). The conquest of a part of S. Rhodesia by the British South African Co. gave to the Company no political dominion over the territory but constituted it a sort of trustee or mandatary for its administration. It was not essential that the Crown should issue a formal proclamation of its intention to annex this region;

the intention could be established by orders-in-council dealing with the lands. The opinion contains an interesting discussion of the rights of aboriginal tribes in lands which they inhabit, and reaches the conclusion that in this particular instance the rights of the aborigines were at the disposal of the Crown after the flight of their king and the conquest of their lands.

Contracts.—The defendant agreed to construct a steamer for plaintiff, subject to a proviso that if France became engaged in an European war by reason of which defendant could not within 18 months from the agreed date of completion "deliver the steamer, the contract should be void, and all the money paid by the purchasers should be repaid to them. It was held that the Great War prevented defendant (a French company) from delivering the steamer and discharged it from all contract obligations. (*New Zealand Shipping Co. v. Société des Ateliers et Chantiers de France*, 1919 A. C. 1.)

A contract for the sale and delivery of goods "as requested" does not bind the seller for an indefinite period, but only for a reasonable time. Hence a buyer to whom goods were delivered as requested during a reasonable period cannot after the lapse of three years compel the seller to deliver the balance of the goods named in the contract. The seller is entitled to treat the contract as having been cancelled by the buyer. (*Pearl Mill Co., Ltd., v. Ivy Tannery Co., Ltd.*,—K. B.—)

Parties had entered into an oral contract for the sale and purchase of a house. The vendor gave to the vendee a receipt for the deposit made by the latter, containing also a statement of the purchase price, of the

name of the house, and the date for the completion of the transaction. This was sent by the vendee to his solicitor with instructions to carry out the contract. It was held to satisfy the requirements of the statute of frauds and to authorize the solicitors to affirm on the vendee's behalf the validity and existence of the contract which he was instructed to carry out. (*North v. Loomes*, 1919, 1 Ch. 378, 120 L. T. R. 533.)

Damages.—Is an actor, public singer, or other public performer entitled to damages for "loss of publicity" when the contract for his public performance is wrongfully repudiated? A recent English decision holds that he is not unless the contract discloses a clear obligation on the defendant's part to allow the plaintiff to appear and perform; in the absence of such obligation the damages are considered too remote (*Turpin v. Victoria Palace, Ltd.*, 1918, 2 K. B. 539, 119 L. T. R. 405). The performer should obtain a stipulation that his name is to appear in advertisements and on defendant's bills and programmes.

The tips which a hairdresser's assistant would have received but lost because of wrongful dismissal by his employer are to be taken into account in fixing his damages for such wrongful dismissal (*Manubens v. Leon*, 1919, 1 K. B. 208, 120 L. T. R. 279).

Duty of Innkeeper to Receive Guests.—That a city hotel has the status of an inn and is therefore "bound to receive as a guest any member of the traveling public, provided there is accommodation in the house, and provided the guest is willing to pay the ordinary tariff charges, and provided also that no reasonable objection can be taken to the guest," is declared to be the law in Scotland as well as in England (*Rothfield v. North British Ry. Co.*, 2 S. L. T. 258). Defendants refused to accept plaintiff as a guest because he was a Jew and a money-lender and, as they mistakenly thought, of alien birth. Their conduct was legally indefensible.

Gift of Chattels.—A parol gift of chattels does not pass ownership to the donee unless possession is given to him. But suppose the donee is in

possession when the donor declares the gift. Is any further act necessary to perfect the donee's title? A negative answer is given in a recent well reasoned decision which declares that it is immaterial whether the donee acquires possession before, or simultaneously with, or after the gift. (*Re Stoneham*, 1919, 1 Ch. 149, 88 L. J. Ch. 77.)

Hire-Purchaser of Chattels.—Such a purchaser is held in England not to be the "true owner" of the chattels so as to enable him to give title to them as against his conditional vendor, under the Bills of Sale Act, 1882 (45 and 46 Victoria, Ch. 19, Sec. 5.) He is only a bailee with an option to purchase, while the conditional vendor retaining title until such purchase is made is the "true owner." (*Lewis v. Thomas*, 118 L. T. R. 689, 88 L. J. K. B. 275.)

Professional Boycotts.—The British Medical Association is a professional but not an incorporated organization. To secure certain pecuniary advantages to its members it threatened to ostracize any member of the medical profession who had any business intercourse with any of its members who broke any of its rules. Plaintiffs disregarded these threats and were damaged by the enforcement of the Association's boycott. They were held to have a good cause of action, as they had suffered actual damages by the willful employment of unlawful means on the part of the Association. It was not engaged in enforcing professional discipline but undertook to turn the members of a liberal profession into an illegal trade union. (*Pratt v. British Medical Association*, 1919, 1 K. B. 244.)

Overhanging Trees.—It is surprising that the rights of the owner of property overhung by the branches of a neighboring tree had not been judicially determined in England until *Mills v. Brooker* (1919, 1 K. B. 555). The case holds that the owner may lop off the overhanging limbs in the abatement of a nuisance, but that he has no right to the fruit on the offending limbs. If he picks and appropriates such fruit, he is liable in conversion. The case leaves undecided the question whether the owner of the tree may enter upon the ad-

joining land to recover fruit which has fallen from the tree.

Rylands v. Fletcher.—The doctrine of *Rylands v. Fletcher* (*A. Y. B.*, 1918, p. 283) was held inapplicable to the following situation. Defendant maintained upon his premises, in connection with his business of making bone manure, a pile of bones which attracted rats. These animals passed from the defendant's bones to plaintiff's land and damaged his crops. He claimed that the doctrine of absolute liability of one who brings upon his land things that are liable to do mischief if they escape entitled him to damages. The court refused to take this view, declaring that the defendant had "done nothing to create an extraordinary risk, and was not answerable for the comings and goings of wild animals which have been the enemies of farmers ever since land was cultivated" (*Stearn v. Prentice Bros.*, 1919, 1 K. B. 394, 146 L. T. 158). Of this decision a learned commentator remarks: "The moral is that one thing a man does at his peril is to try to make *Rylands v. Fletcher* carry more than it can bear." A plaintiff succeeded, however, in making it carry liability against the owner of a steam tractor driven along the highway which emitted sparks which set fire to and damaged plaintiff's premises, although defendant was not negligent (*Mansel v. Webb*, 1919,—K. B.—, 88 L. J. K. B. 323).

Wills.—The effect of war conditions upon legacies is illustrated by the recent case of *Re Cole*: *Cole v. Cole* (1919, 1 Ch. 218, 88 L. J. Ch. 82). A pre-war will directed the trustees of the testator to assign certain shares in a company of whose board of directors he was chairman to each of his sons who should, prior to attaining a certain age, enter the employ of the company and remain until he was 33. The purpose of the provision was that the sons should remain connected with the business and become good business men.

On the outbreak of war the eldest son, who had fully complied with the conditions of the will, and was employed by the company, but had not reached the age of 33, with the consent of the directors voluntarily joined the Army, and had remained in the service down to the time

of the application to the Court. Apparently he joined as a private and afterwards obtained a commission. He had been wounded. The question arose whether in these circumstances the son in question, if he obtained his discharge from the Army as soon as reasonably possible, and then proceeded to work in the service of the company until the age of 33, would be entitled to receive the benefit of legacy of the shares. Mr. Justice Sargent held that he would. The ground of his Lordship's judgment was that the employment as contemplated by the will, in fact, continued, notwithstanding the son's service in the Army. There was, in fact, a mere temporary dispensation of obligation to render service under the contract of employment. There was evidence by the directors that they still regarded the employment to be a continuing employment, although payment for services was in fact discontinued.

It follows that employment in private service may continue, though the employee is temporarily in the army. The doctrine of the case seems to be applicable to contracts of service as well as to provisions in wills.

The House of Lords in reversing the decision of the Court of Appeals in *Re Egan*; *Keane v. Hoore* (1918, 2 Ch. 356, 119 L. T. R. 618; *A. Y. B.*, 1918, p. 285) has overruled a view maintained by lower English courts for centuries and established a uniform common-law rule for all parts of the Empire. Gifts by a Roman Catholic testator for masses to be said for souls of the dead are no longer to be held void as for a superstitious use, but are to be upheld as charitable gifts. (1919 A. C.—.)

In *Houston v. Burns* (1919 A. C. 337) the House of Lords, affirming the decision of the Scotch Court of Session, held void for uncertainty a bequest "for such public, benevolent, or charitable purposes in connection with the parish of Lesmahagow in such sums and under such conditions" as certain trustees in their discretion should think proper. The expression "articles of *vertu*" connotes that there is an artistic element in the articles, and "curiosities" mean objects valued as curios, rare or strange. The two phrases are broad enough to include rare old books and manuscripts of the testator. (*In re Baroness Zouche*; *Dugdale v. Zouche*, 88 L. J. Ch. 274.)

Alien Enemies.—A partnership between an Englishman and a Ger-

man was dissolved by war. In winding up the firm's affairs the English member brought a suit to collect a debt due the firm, naming the German member, who was an alien enemy, as a plaintiff. Defendant sought to defeat the action on the ground of misjoinder of the alien enemy. But the House of Lords, by a majority vote of one, upheld the contention of the plaintiff that the courts

had established exceptions to the rule against alien enemies being parties to suits in English courts, and that the case at bar should be treated as an exception as not falling within the policy of the rule, which in the particular circumstance of this case would work hardship to British subjects. (*Rodriguez v. Speyer Bros.*, 1919 A. C. 59, 88 L. J. K. B. 147.)

AMERICAN JURISPRUDENCE

LEGISLATION

Uniform State Laws.—The Commissioners on Uniform State Laws have approved and sent to the legislatures for adoption 37 acts. Some of these have met with legislative favor; others, though deemed of great importance by the Commissioners, have received but little consideration from state legislators. As a rule acts relating to commercial law have proved most popular. On the other hand, acts promotive of social and economic reform have gained but little impetus, as shown by the following table:

Uniform Negotiable Instruments Act, adopted in Texas, 1919, and now law in all our jurisdictions except Georgia and Porto Rico.

Uniform Warehouse Receipt Act, adopted in Texas, 1919, and now law in 43 jurisdictions.

Uniform Bills of Lading Act, adopted in North Carolina, 1919, and now law in 23 jurisdictions.

Uniform Sales Act, adopted in Idaho, Iowa, Missouri, Oregon, and Tennessee, 1919, and now law in 24 jurisdictions.

Uniform Stock Transfer Act made no progress in 1919, but has been adopted in 14 jurisdictions.

Uniform Partnership Act, adopted in Idaho, New Jersey, and New York, 1919, and now law in 11 jurisdictions.

Uniform Limited Partnership Act, adopted in Idaho, Minnesota, New Jersey, Tennessee, and Wisconsin, 1919, and now law in 10 jurisdictions.

Uniform Domestic Acknowledgments Act, adopted in Tennessee, 1919, and now law in nine jurisdictions.

Uniform Probate of Foreign Wills Act, adopted in New York, 1919, and now law in seven jurisdictions.

Uniform Conditional Sales Act, adopted in Alaska, Arizona, Delaware, New Jersey, South Dakota, and Wisconsin, 1919, and now law in six jurisdictions.

Uniform Fraudulent Conveyance Act, adopted in Delaware, New Jersey, South Dakota, Tennessee, and Wisconsin, 1919, and now law in five jurisdictions.

Uniform Extradition of Persons of Unsound Mind Act, adopted in Wisconsin, 1919, and now law in seven jurisdictions.

Uniform Flag Act, adopted in Maine, Washington, and Wisconsin, and now law in five jurisdictions.

The *Uniform Family Desertion Act* is law in 11 jurisdictions; the *Marriage License Act* in two; the *Marriage Evulsion Act* in five; the *Migratory Divorce Act* in one; the *Divorce Procedure Act* in two; the *Annulment of Marriage and Divorce Act* in three; the *Land Registration Act* in three; but none of these made any legislative progress during 1919.

In order to acquaint the legal profession more thoroughly with these uniform laws a committee of the Commissioners have

prepared a schedule or map for cross reference as between sections of the various Uniform Acts as approved by the Conference, and the same Acts as they have been incorporated into the Statutes of the various States, enabling any inquirer to determine at a glance the section of the Uniform Act which corresponds to the section of his own statute in his own State. This is supplemented by grouping the decisions on a particular provision under the number of the section of the Uniform Act as it was promulgated by the Conference; so that the decisions on any particular point may be available to a practitioner in any State if he will ascertain the number of the section of his statute in which he is interested, obtain from the schedule or map above described the corresponding section number in the approved Uniform Act, and turn to the decisions collected under that section in the appropriate chapter dealing with that Act.

Declaratory Judgments.—While the Commissioners on Uniform State Laws are engaged in perfecting an act authorizing declaratory judgments, the State of Michigan has made a venture into this field novel to American legislation. The first section of the statute is as follows:

No action or proceeding in any court of record shall be open to objection on

the ground that a merely declaratory judgment, decree or order is sought thereby, and the court may make binding declarations of rights whether any consequential relief is or could be claimed, or not, including the determination, at the instance of any one claiming to be interested under a deed, will or written instrument, of any question of construction arising under the instrument and a declaration of the rights of the parties interested.

It will be observed that this act does not extend declaratory jurisdiction to statutes or ordinances. The draft proposed by the Commissioners does. It provides that in such cases the attorney-general or corresponding municipal officer shall be notified by the party attacking the statute or ordinance and shall be entitled to be heard on the question of its validity. All persons are to be made parties who have or claim any interest which would be affected by the declaration.

Florida has a statute similar to that of Michigan, which is Ch. 7857 (No. 75 of the Laws of 1919), approved Aug. 12, 1919.

Strict Construction of Statutes.—A recent Michigan decision is in point. A statute required partnerships to file certificates giving the names of the partners and other details of the partnership contract. Failure to comply with the statute had been held to prevent the partners from maintaining an action on contract against firm debtors. But the court refused to extend this doctrine to an action for the wrongful conversion of firm property by a stranger, its provisions "being in plain derogation of common-law rights." (*Denton v. Booth*, —, Mich. —, 168 N. W. 491.)

CONSTITUTIONAL LAW

Public Office.—The legislature of Virginia abolished the Administration Board of the City of Richmond. Plaintiff, who had been elected as a member of the Board for a term of three years, claimed that the legislation was invalid and that he was entitled to the salary of the office for three years. But the court held that he had no vested interest in the office, either under the Federal or state constitution, and that the office having been lawfully abolished there was no salary accruing to plaintiff. (*Hobson*

v. City of Richmond, — Va. —, 5 Va. L. Reg. 434.)

That Candidacy for office is a privilege, not a right, is the doctrine announced in a well considered case (*State v. Yeatley*, 194 Ala. 574, 69 So. 723, Ann. Cas. 1918, E. 347) holding a statute to be constitutional which provided:

No person shall be eligible to the office of president or member of the board of commissioners . . . who shall, either by election or appointment, have held the office of president or member of the board of commissioners of any such city, three consecutive years, within the four years immediately preceding the date of the election for members of the board of commissioners.

The statute was neither *ex post facto* nor discriminatory, nor did it deprive a candidate whom it disqualified of any vested right.

Public-Service Corporations.—Public-service Corporations, though artificial persons, are held to a stricter rule of liability than natural persons in a recent decision (*Sidelinker v. York Shore Water Co.*, 117 Me. 528, 105 At. 122). The defendant, having legislative authority to exercise the power of eminent domain for public-service purposes, filed the statutory statement that it had taken plaintiff's land for such purpose. It did not enter upon the land, and it was admitted that filing such a claim by a private individual, if done without malice, would not amount to a tort. But such conduct on the part of a corporation armed with the state's power of eminent domain might operate oppressively upon property owners and was held to amount to an actionable tort.

Important questions in constitutional law and in practice were determined in *Municipal Gas Co. v. Public Service Commission* (225 N. Y. 89, 121 N. E. 772). The New York laws of 1907, Ch. 227, fixed the price of gas in Albany at a rate which was not then confiscatory. Plaintiff claimed that changing conditions had made the rate confiscatory and asked relief from the Public Service Commission, but it was held that this body had no power to grant the relief sought. Thereupon the plaintiff brought this suit in equity. Defendant's demurrer was sustained by

the trial court and by the Appellate Division, but it was overruled by the Court of Appeals, which held that though the statute was valid when passed, if the rate became confiscatory later, plaintiff could invoke his constitutional rights in court. Precedents in the Federal courts were declared to support this view; though the exact question had not been raised. Plaintiff's remedy at law, by charging each customer more than the statutory rate and suing each patron for the excess, would not be a complete remedy and would subject plaintiff to danger of heavy penalties if it overcharged.

If a party has voluntarily contracted in its franchise arrangement to render service at a specified rate, he is bound thereby, even though, by reason of new conditions, the rate is such that his business is conducted at a loss (*Columbus Ry., Power & Light Co. v. Columbus*, 249 U. S. 399, 39 S. C. 349). It is not a case of unconstitutional confiscation, but of bad bargaining. Equity does not relieve from hard bargains simply because they are hard. If, however, the acceptance of the franchise under an ordinance fixing rates does not amount to an absolute contract, the company is entitled to have the rates increased so that they shall not be confiscatory (*Ottumwa Ry. & Light Co. v. City of Ottumwa*, — Ia. —, 173 N. W. 270). In this case the court held that a municipality has no power to agree upon unalterable rates or charges by public-service corporations unless the power to make such contract can be held to be indispensable to the exercise of its powers or unless the power is expressly granted by legislation.

Interstate Commerce.—Is the operator of a union freight station engaged in interstate commerce, who, under contracts with several interstate railroads, receives freight at their termini and transports it by ferry and rail to its freight houses, all within the boundaries of a single state? The U. S. Supreme Court answers it in the affirmative in *U. S. v. Brooklyn Eastern Terminal* (249 U. S. 296, 39 S. C. 283), and holds the defendant to be within the Federal Hours of Service Act. The fact that

the defendant was not chartered as a common carrier did not exclude it from that category. Its business was clearly that of common carrier. But even if it were not of this class, it was an agent of the interstate railroads within the meaning of that term in the Act.

An interesting question arose in *Western Union Telegraph Co. v. Bowles* (— Va. —, 96 S. E. 645), as to whether the transmission of a message between two points in a state fell within the category of interstate commerce if in the course of transmission the message passed out of the state. The question was answered in the affirmative, although the message might have been transmitted over another route wholly within the state. A state act which defines such messages as intrastate was held to be unconstitutional, being an attempt to legislate upon a subject over which Congress possessed and had exercised exclusive control.

Whether a servant is engaged in an interstate-commerce transaction at a particular time is to be determined by the Federal decisions which construe the Federal statutes as to employer's liability. Applying the doctrine of these decisions, the Montana Supreme Court held that a servant of a railroad company engaged in wheeling brick from a car on a siding to a freight terminal in process of construction was not engaged in interstate commerce. His action against his employer for injuries while thus engaged was controlled by state law, and he was subject to the fellow-servant doctrine. (*Matti v. Chicago, M. & St. P. Ry.*, 55 Mont. 280, 176 Pac. 154.)

Police Power.—The Supreme Court of Missouri is disposed to limit the exercise of police power in the form of municipal ordinances. A chauffeur was arrested for refusing to move on from the front of an office building where a sign read, "Do not stand between these posts." He told the policeman that he would wait until his employer's wife returned from the building, but the policeman arrested him for violating the ordinance requiring drivers at all times to comply with any direction by any member of the police force as to stopping, start-

ing, or departing from any place. The Court said (*City of St. Louis v. Allen*, 275 Mo. 501, 204 S. W., 1083):

The ordinance here involved puts the citizen in the arbitrary power of the policeman, regardless of the circumstances of the case. Its invalidity is so glaring that the respondent has not cited any authority to uphold it. . . . In our opinion the ordinance in question is subject to the objection that it may deprive persons of the equal protection of the laws, and that, though the city may have a most meritorious case, it cannot be based on that invalid ordinance.

In *Provo City v. Provo Meat Co.* (49 Utah 528, 165 Pac. 477, Ann. Cas. 1918, D 530) a person who sold meat in connection with a general mercantile business was held liable to a license tax as a meat dealer as well as to a license tax as a general merchant. This was held not to be a double tax in any sense, or a splitting of his business into separate parts. The sale of meats affects the public health and calls for special regulation. A license fee by the seller is paid to defray the costs and expenses of issuing the license and of inspection and general supervision. The imposition of this tax in no way affects a city's right to impose an occupation tax on a merchant as such.

How far legislation may go in preventing violations of prohibitory liquor laws is shown by a Georgia statute which the Supreme Court of that state has held to be valid in *Kunsberg v. State* (147 Ga. 591, 95 S. E. 12). The Court said:

On the basis of protecting health, morals, and the public safety, the provisions of the act making it illegal to manufacture, sell, etc., intoxicating liquors have been held to be a valid exercise of the police power. The manufacture and sale of drinks made in imitation of or intended as a substitute for intoxicating drinks as specified in the act, although not intoxicating themselves, afford a cloak for clandestine manufacture, sale, etc., of intoxicants—the evil which the legislature designed to prevent. Under such circumstances, the power to prohibit the manufacture, sale, etc., of the beverages will include the power also to prohibit the manufacture and sale of substitutes and imitations.

Another example is afforded by *Barbour v. Georgia* (249 U. S. 373, 39 Supt. Ct. 316). Georgia passed an act which went into effect May 1, 1916, making it a crime for any per-

son to have in his possession more than one gallon of vinous liquor. Barbour claimed that the law violated the Fourteenth Amendment so far as it related to liquor which he had acquired before the law became effective. This view was rejected by the Supreme Court, which held that a person accumulating liquor must realize that with the lapse of time the holding of the stock would become a crime.

The courts are liberal in sustaining the exercise of police power when the legislative purpose tends directly to improve the sanitary conditions of workmen. In this category is a decision (*State v. Scullin-Gallagher Co.*, 268 Mo. 178, 186 S. W. 1007, Ann. Cas. 1918, E 620) sustaining a statute requiring operators of foundries employing more than ten men

to provide suitable toilet rooms, containing washbowls or sinks provided with running water, hot or cold, water closets connection with running water and a suitable room or place wherein the men may change their clothes, said room to be directly connected with the foundry building, properly heated, ventilated and protected with a suitable locker or place to properly change his clothing or wearing apparel.

The Harrison Federal Narcotic Drug Act (L. 1914, Ch. I, 38 Stat. 785) is declared constitutional in *Webb v. U. S.* (249 U. S. 96, 39 S. C. 217; see also *U. S. v. Doremus*, 249 U. S. 86). It is construed as prohibiting retail sales of morphine to persons who have no physician's prescription and who cannot obtain an order blank therefor because they are not of the class to whom it may be issued. A physician has no right under the statute to issue an order to a patient in order to make him comfortable and thus confirm him in the habit. The order must be a prescription by a physician in the course of his professional treatment in attempting a cure of the narcotic habit.

State Income Taxes.—State income taxes may be levied on incomes derived in part from business involving interstate commerce (*U. S. Glue Co. v. Town of Oak Creek*, 247 U. S. 321, 38 Sup. Ct. 499, Ann. Cas. 1918, E 748, upholding the Wisconsin income-tax law and reversing 236 Fed. 661).

If there be no discrimination against interstate commerce, either in the admeasurement of the tax or in the means of enforcing it, it constitutes one of the ordinary and general burdens of government, for which those otherwise subject to the jurisdiction of the states are not exempted by the Federal Constitution because they happen to be engaged in commerce among the states.

State Referendums on Federal Amendments.—The Oregon Supreme Court holds that the referendum provisions of the State Constitution do not apply to a joint resolution ratifying the prohibition amendment to the Federal Constitution but are limited to proposed laws of the state (*Herbring v. Browne*, — Ore —, 180 Pac. 328). The opposite view was taken in *State v. Howell* (— Wash. —, 181 Pac. 920) which holds that the seventh amendment to Art. 2, Sec. 1, of the state constitution providing for referendum of "acts, bills, or laws," includes the proposed amendment to the U. S. Constitution. It also holds that the Tenth Amendment to the U. S. Constitution is "a declaration that the people of the several states may function their legislative power in their own way." The opinion reaffirms the doctrine that the Federal Government has no power to control the police power of the states except as such power may have been expressly granted or as it may be necessary to maintain the acknowledged powers of the Federal Government.

PROPERTY AND CONTRACTS

Absolute Contracts.—Absolute contracts are unwise affairs, for the obligors are not relieved from performance by the act of God or inevitable accident. Their failure to provide in the contract against such contingencies is ascribable in law solely to their folly (*Prother v. Latshaw*, — Ind. —, 122 N. E. 721). Another example is afforded by *Piaggio v. Somerville* (119 Miss. 6, 80 So. 342). The owner of a vessel had contracted to carry a load of lumber to Italy but refused because submarines increased the perils of the journey. They were held liable in damages for non-performance. There was no change in the law making per-

formance unlawful, and the case did not fall within the doctrine of *Kronprinzessin Cecilie* (244 U. S. 12, 37 S. C. 440), in which, after the contract was made, war broke out, making the risk of performance so great that it was not to be believed the shipowners would have contracted unconditionally to carry had the war been anticipated. Still another example is found in *International Paper Co. v. The Gracie D. Chambers* (248 U. S. 387, 39 S. C. 149), in which the shippers prepaid the freight and the bills of lading provided: "Restraints of princes and rulers excepted. Freight for said goods to be prepaid in full, without discount retained and irrevocably, ship and cargo lost or not lost." The ships did not sail because of embargo, but prepaid freight could not be recovered by shippers.

Benefit Contracts.—A member of a railroad brotherhood became color blind to such an extent that he was dismissed from train service because of such defect. He claimed that this constituted permanent loss of sight of both eyes within the meaning of his benefit contract. The Supreme Court of Nebraska upheld this contention in *Routt v. Brotherhood of Railroad Trainmen* (101 Neb. 763, 165 N. W. 141), but rejected plaintiff's claim in the later case of *Kane v. Brotherhood of Railroad Trainmen* (102 Neb. 645, 168 N. W. 598), holding that plaintiff's sight cannot be considered as totally lost when he is still able to use his eyes for other purposes, though so affected as to debar him from the particular occupation of trainman on railroads.

Contracts Subject to Implied Condition.—An excellent example of a contract subject to implied condition is found in *Virginia Iron, Coal & Coke Co. v. Graham* — Va. —, 98 S. E. 659), where a 40 year mining lease provided that the lessee should pay a fixed price "for each ton of good merchantable ore mined and shipped . . . not less than 20,000 tons to be shipped each year." The contract was held to be subject to the implied condition that sufficient ore existed to supply the stipulated amount per year. If it did not, the lessee was relieved from the contract

obligation when the supply was exhausted.

Illegal Contracts.—It is not surprising that rival candidates for public office continue to make agreements under which one is to withdraw from the race and the other is to share with him the income of the office. It is astonishing, however, that the withdrawing candidate can find counsel who will bring suit in his behalf for the recovery of the promised pelf. His defeat is as certain as it is merited—witness *Martin v. Francis*, 173 Ky. 529, 191 S. W. 259, Ann. Cas. 1918, Sec. 289). Another form of illegal contract which parties continue to make, only to have them declared void by the courts, is that between husband and wife that one shall bring a divorce action and the other shall not defend (*Edleson v. Edleson*, 179 Ky. 300, 200 S. W. 625, 2 A. L. R. 689). A curious example of illegal contract is found in *Morgan Munitions Co. v. Studebaker Co.* (226 N. Y. 94, 123 N. E. 146). Plaintiff sued upon a contract for commissions amounting to \$825,000 in negotiating sales by defendant to the British Government. Defendant alleged that plaintiff's assignor in securing the contract falsely impersonated a retired colonel in the British Army and made the contract in such colonel's name. Plaintiff demurred, but it was held that such false personation precluded the formation of any such contract between the defendants and false personator, both because it purported to be with a different person, and because such false impersonation is made a crime by Sec. 939 of the Penal Law, and a contract obtained by the commission is unenforceable.

Contracts under Seal.—An option under seal to purchase standing timber within a specified period does not require a consideration to support it at common law (*Thomason v. Bescher*, 176 N. C. 622, 97 S. E. 654, 2 A. L. R. 626). The court said:

We think it the better position, and sustained by the weight of authority, that the principle should prevail in reference to these unilateral contracts or options when, as in this case, they take the form of solemn written covenants under seal; and its proper application is to render them binding agreements, irrevocable

within the time designated, and that the stipulations may be enforced and made effective by appropriate remedies, when such time is reasonable, and there is nothing offensive and unconscionable in the terms of the principal contract.

Infants' Contracts.—That an infant who induces another to contract with him by falsely declaring that he is of age, and who receives and retains the benefit of the contract, is estopped to set up infancy as an escape from the contract obligation is the wholesome doctrine enunciated by the New Jersey Court of Errors in *La Rosa v. Nichols* (97 N. J. L. 375, 105 At.—), reversing the decision of the Supreme Court (91 N. J. L. 355, 103 At. 390). Upon the infant's representations that he was of age and at his request a garage keeper did work upon and furnished supplies for the infant's automobile, amounting to the sum of \$74.49. For this the keeper claimed a lien and refused to allow the infant to remove the car until the bill was paid. The infant brought replevin, repudiating his contract because of infancy, and succeeded in the lower courts, but was unanimously defeated in the court of last resort.

Brokers' Commissions.—Brokers' commissions are a fruitful topic of litigation. The broker tries to frame the contract of agency in his favor but does not always succeed in his attempt to preëempt his commissions. In *Roberts v. Harrington* (168 Wis. 217, 169 N. W. 603) the contract gave the broker exclusive sale of certain property for four months. Within that period the owner sold the land to one whom the broker had failed to interest in the property. The owner did not know that the buyer had been approached by the broker and secured the sale by lowering the price \$7.50 an acre from that fixed by the broker. It was held to be an implied term of the agency that the owner retained his right to sell his own property at his own price and that the broker was not entitled to a commission.

Common Carriers.—The severity of the common law towards the common carrier is exemplified in *L. Kommel & Son v. Champlain Transportation Co.* (— Vt. —, 105 At. 253, 2 A. L. R. 275). Goods were consigned by the

seller to X under an order from Y who had been X's agent; the consignor supposed he still held that position. In fact, he had bought the business from X and ordered the goods for himself, though this was not known by the seller or the carrier. The latter delivered the goods to Y, though they were consigned to X, and was held liable to the seller for their value. "The rule may seem harsh," said the court, "but experience has firmly established the fact that in a great majority of cases this strict requirement imposed upon the common carrier is for the public good."

Delay due to the Mail.—The lessor undertook to cancel a lease for the lessee's failure to pay rent at the agreed time, but was defeated when the lessee proved that he remitted the rent by registered letter which failed to reach the place of payment at the agreed time because of delay in the mails. It was clear that the latter had no intention of forfeiting his rights. On the other hand, he made a reasonable attempt in the customary manner to pay at the stipulated time. The mail was not the agent of the lessee, but the mutual agent of both parties for the transmission of the rent. (*Kays v. Little*, 103 Kan. 461, 175 Pac. 149, 1 A. L. R. 675.)

Landlord and Tenant.—The general rule that a tenant is precluded from denying the title of his landlord is subject to an exception in favor of a tenant who has been induced by the landlord's fraud to enter into the lease. In such case no estoppel arises. (*Gray v. Whitla*, — Okla. —, 174 Pac. 239, 2 A. L. R. 356.)

Forfeiture by Conditional Vendor.—The hazardous nature of a conditional vendor's title is shown by the decision in *H. A. White Auto Co. v. Collins* (— Ark. —, 206 S. W. 748, 2 A. L. R. 1594). The plaintiff gave possession of an automobile to a conditional vendee but retained title until the purchase price should be paid. The vendee had the car fitted up with copper tanks and, thus camouflaged, used it in transporting spirituous liquors from Missouri into Arkansas in violation of the laws of the latter state. It was confiscated

by Arkansas officials, and the plaintiff was defeated upon attempting to regain the car. As plaintiff had voluntarily parted with the possession of the car, it cannot complain against the judgment of confiscation rendered against it because of the unlawful use made of it by persons who were in possession of it with plaintiff's knowledge and consent.

Limiting Liability.—A recent decision of the N. Y. Court of Appeals will result, undoubtedly, in modifying the terms upon which truckmen move furniture. In *Herman v. Powers Co.* (226 N. Y. 205, 123 N. E. 373, reversing 175 App. Div. 627) plaintiff employed defendant to move her household goods from one apartment to another. By her agent she signed a memorandum stating where the goods were to be taken and that the charge was to be \$49 and limiting defendant's liability to \$50 for any article together with its contents. Defendant's employees broke open a cabinet safe and took jewelry for which plaintiff recovered a judgment of \$1,000. This was affirmed by the Appellate Term, reversed by the Appellate Division, and reaffirmed by the Court of Appeals. The case was distinguished from *D'Utassy v. Barrett* (219 N. Y. 420), where a valuation was fixed by the shipper to get a lower rate and the carrier thus induced to take less care of the property than if he had known its true value, and was brought within previous decisions requiring an employer to stipulate in clear terms for exemption for the wrongdoing of his servants.

Another attempted limitation on a carrier's liability, which failed, is found in *Boston, etc., Railway v. Piper* (246 U. S. 439, 38 Sup. Ct. 354, Ann. Cas. 1918, E. 469), where the carriage contract stipulated that in case of delay or detention the shipper was to recover only his actual expenses for food and water during the detention period. The court declared that

this stipulation contravenes the principle that the carrier may not exonerate itself from losses negligently caused by it, and it is not within the principle of limiting liability to an agreed valuation which has been made the basis of a reduced freight rate. Such stipulations as are here involved are not legal limitations upon the

amount of recovery, but are in effect attempts to limit the carrier's liability for negligence by a contract which leaves practically no recovery for damages resulting from such negligence.

Minority Stockholders.—That minority stockholders are not entirely at the mercy of the majority is clear from *Kavanaugh v. Kavanaugh Knitting Co.* (226 N. Y. 185, 123 N. E. 148). Plaintiff who owned one-third of the stock brought suit to prevent the majority from paying themselves excessive salaries. Thereupon they undertook to dissolve the corporation, although it was exceedingly prosperous. As they were acting in bad faith towards plaintiff, he secured an injunction against them. On somewhat similar principles the owner of a minority interest in a vessel was accorded an injunction against its sale by the majority owner until he had given a bond for payment to his coowners of the latter's share of the proceeds (*The Olga*, 254 Fed. 439).

Stock Dividends.—Whether stock dividends belong to the life tenant or the remainderman is a point upon which our courts differ. The Pennsylvania rule apportions them according to whether they are earned before or after the commencement of the life estate. The Massachusetts rule regards cash dividends as income and thus belonging to the life tenant, while stock dividends are treated as capital belonging to the remainderman. A recent Michigan case holds that if the stock dividend represents simply an enhancement in value of the corporate assets, from causes other than the accumulation of earnings, and due apparently to good management and the growth of trade, it is to be deemed to be a part of the *corpus* of the estate and belongs to the remainderman. The principle underlying this decision seems to be recognized generally as sound. (*Poole v. Union Trust Co.*, 191 Mich. 162, 157 N. W. 430, Ann. Cas. 1918, E 622.)

Negotiable Paper.—Pennsylvania has arranged herself with Massachusetts and New York and against Iowa in holding that the payee may be a holder in due course of negotiable paper, and in that capacity may recover on the instrument against the

maker or irregular indorser who has put his name to it while incomplete, although the party for whom he signed it filled in the blanks in violation of the understanding between them (*Johnston v. Knipe*, 260 Pa. 504, 105 At. 705). A person who indorses negotiable paper "without recourse in any way" does nevertheless warrant the genuineness of the maker's signature, and is liable to a holder in due course for value if the maker's signature is forged (*Miller v. Stewart*, Tex. Civ. App., 214 S. W. 565).

Principal and Surety.—That a surety becomes such for a compensation does not defeat his right to subrogation in case he is obliged to pay the principal's debt. But being a paid instead of a gratuitous surety, he must show that his rights have been injuriously affected before he can defeat the contract of suretyship. (*Wasco Co. v. New England Ins. Co.*, 88 Ore. 465, 172 Pac. 126, Ann. Cas. 1918, E 656.)

Specific Performance.—A contract to hold a baby show will not be specifically enforced, nor will damages for its non-performance be awarded, when an epidemic disease, like infantile paralysis, renders such a gathering highly dangerous to public health (*Hanford v. Conn. Fair Association*, 92 Conn. 621, 103 At. 838). Plaintiffs agreed to promote and manage a baby show in Hartford, Conn., on certain days and to supply 120 prizes and various printed matter, and defendant agreed to furnish a room and pay plaintiffs \$600. Before and during the agreed days infantile paralysis was epidemic in Hartford, and defendants cancelled the contract, as one the performance of which would be highly dangerous to public health and therefore against public policy. Even though the contract was unqualified and absolute, so far as its expressed terms were concerned, the court declared that neither party contemplated that the show should be held if the public health would be endangered thereby.

Covenants for Restricted Use.—Property in a block on Riverside Drive, New York City, was sold with the restriction that buildings thereon should be used only as private resi-

dences for one family. A tenant of one of the houses was about to use it as a maternity hospital. The owners of other houses were granted an injunction against such use, as the covenant runs with the land, and it was the clear intention that all the houses on the land in question should share the benefit of the restriction (*Booth v. Knipe*, 225 N. Y. 390, 122 N. E. 202, reversing 178 App. Div. 423). This restriction was held to be one upon the enjoyment of the property and not a mere limitation upon construction of buildings.

Trade Fixtures.—Defendant leased "surface ground only" with the right to put up buildings for his own use and to remove them within 60 days after the expiration of the lease, provided he had performed his side of the contract. The buildings were held to be the personal property of the lessee, known as trade fixtures, but were removable by him not later than 60 days after the expiration of the lease (*Buffalo Zinc & Copper Co. v. Hale*, — Ark. —, 206 S. W. 661). He had the right, however, to make an earlier removal as there was nothing to indicate that the erection of the buildings was to be made by the tenant as security for the rent.

Wills.—A bequest to be used in propagating Christian Science has been upheld as valid. Although, said the court, the views of this sect are not in accord with doctrines which are generally accepted, to deny the right to propagate them would be to adopt a principle which would be in the way of progress in every direction. The bequest in question is not for superstitious uses nor in any way opposed to public policy. (*In re Orr*, 40 Ont. L. R. 567.)

A testator's gift to "the fresh air fund of Newark, N. J." to be invested and the interest "used every summer for special cases that need to be sent right away" is not void either for indefiniteness or because there was no organization in Newark to administer such a fund (*White v. Newark*, 89 N. J. Eq. 5, 103 At. 1042).

When a person promises to compensate by legacy another for services, without an agreement as to rate, there is an implied term that the legacy shall be an adequate compen-

sation. If it is not, the promisee has the option of accepting the legacy, when it will operate as full payment, or of refusing the legacy and recovering from the estate the full value of his services. (*Schmetzer v. Broegler*, 92 N. J. L. 88, 105 At. 450.)

TORTS

Alienation of Affections.—Although parents have the legal right to advise a child to leave a spouse in case they act only for the welfare of the child, and although the presumption is that their advice is honest, they forfeit their immunity when they conspire with others to alienate the child's affections from the spouse without just cause (*Melcher v. Melcher*, 102 Neb. 790, 169 N. W. 720). The defendants sought to separate the husband from the wife because they objected to the religion, the financial condition, and the education of the wife, but there was nothing in her conduct that furnished a cause for divorce. A judgment for \$4,750 in plaintiff's behalf was sustained, the trial court having charged the jury that she was entitled to only compensatory damages.

Borrower of Telephone Services.—One who uses a telephone, not as a customer but as an interloper, is a mere licensee to whom the telephone company owes no duty save that of not willfully, wantonly, or maliciously injuring him. Hence, if such a user is injured by an electric shock while telephoning, he cannot recover damages from the company unless he can show willful, wanton, or malicious misconduct on its part. Mere negligence of the company which would sustain an action by a patron will not avail the injured borrower. Such is the doctrine announced in the carefully considered case of *Inman v. Home Telephone & Telegraph Co.* (— Wash. —, 177 Pac. 670).

Charitable Corporations.—The constitution of Kentucky exempted public charitable institutions from taxation. This provision has been held to exempt Young Men's Christian Associations from paying license fees for maintaining restaurants although strangers as well as members make use of this service (*Corbin Y. M. C. A.*

v. Comm., 181 Ky. 384, 205 S. W. 388, A. L. R. 264). In the opinion of the court:

The fact that for the meals, lunches, and soft drinks that are served in the restaurant charges are made, to both members and non-members of the organization, although the charges to the latter are possibly slightly in excess of those to the former, but without profit, merely emphasizes the purely public character of this branch of the service, and does not, in any wise, alter its charitable quality, as has been frequently decided in this and other states. If such institutions as this are liable to the payment of the license tax for operating a restaurant, then they are also liable, under the same section of our statutes, for maintaining bowling alleys, billiard rooms, and sleeping rooms, if more than 25 rooms are provided. It is a significant fact that no case is found from this or any other court where an attempt has been made to enforce the collection of any such fee against such an institution, although it is a matter of common knowledge that such institutions frequently, if not usually, provide billiard rooms, bowling alleys, and other forms of recreation and amusement, in addition to a gymnasium, and that, in their "endeavor to seek out young men and bring them under moral and religious influences," it has of late years become almost a universal practice to provide sleeping apartments for members and non-members as well.

Joint Wrongdoers.—An interesting example of liability under the head of joint wrongdoers is found in *Northrup v. Eakes* (— Okla. —, 178 Pac. 266). Plaintiff's barn and its contents were destroyed by fire caused by ignition of oil on a stream. The oil had been allowed negligently to flow from the separate premises of several parties onto the water without concerted action, yet as the oil formed a single mass, each party was held liable for all the damage resulting from the fire. It was also held that the negligence in permitting this inflammable substance to escape onto the water was the proximate cause of plaintiff's harm.

The disposition of a jury to find against corporations is shown in *St. Louis & San Francisco Ry. v. Dancy* (— Okla. —, 176 Pac. 209). Dancy joined the company, its engineer and fireman in a suit for injuries caused by the negligence of these servants. The jury gave a verdict against the company but in favor of the engineer and fireman. It was held on appeal that the verdict could not stand, as the company was liable

only in case its servants were negligent. If they were negligent, the verdict should be against them as well as against the company.

Liability to Passengers of Common Carrier.—That a common carrier has the right to use such force as is necessary to protect its passengers from wrongful attack by a fellow passenger, even to the extent of imprisoning the wrongdoer, is unquestioned. But must the carrier wait for an attack before inflicting corporal punishment or imprisonment upon a boisterous passenger who is using indecent language? Yes, according to *Parris v. Deering S. W. Ry* (— Mo. —, 208 S. W. 97), but for this latter misconduct the carrier may eject the offending passenger, using only such force as is necessary to accomplish that end. A common carrier is also liable to a passenger for the failure of a station agent to attempt his protection when called upon for help against strangers who assaulted and robbed him while he was waiting at the station for a train. (*Missouri, Kansas & Texas Ry. v. Silber*, — Tex. —, 209 S. W. 188.)

Liability of Labor Unions.—The Massachusetts courts continue to hold labor unions liable in damages when they employ unlawful means to accomplish a lawful purpose. In a recent case it appeared that a labor union circulated among master masons a statement that its members would refuse to work for certain contractors, giving as a reason the false assertion that these contractors had been working non-union masons. The union's purpose was to prevent the contractors from securing mason work and to get it for themselves. It succeeded in putting the contractors out of business. This intentional and harmful interference with the business of the contractors gave them a right of action for damages against the union. "The sending out of this false statement, with intent to destroy the business of the plaintiffs, was malicious within the legal meaning of that word, was without legal justification, constituted an unlawful conspiracy, and entitled the plaintiffs to recover substantial damages." (*Martineau v. Foley*, 231 Mass. 220, 120 N. E. 445, 1 A. L. R. 1145.)

Liability of Municipal Corporations.—A summer camp maintained by a municipal corporation for the health of the children of the city is not a business enterprise of the city, though the latter makes a small charge to help pay the costs of the camp. On the contrary, the city is then exercising a governmental function and recovery cannot be had against it for injury to a child through the negligence of the city's servants. (*Kellar v. City of Los Angeles*, — Cal. —, 178 Pac. 595.)

In disposing of garbage a city is exercising a governmental and not a business function, according to *Montain v. Fargo* (38 N. D. 432, 166 N. W. 416, Ann. Cas. 1918, D 826). The opinion contains a valuable review of authorities, showing that Colorado and New York are quite in the minority in holding a contrary view.

A city is not liable to a property owner for sickness caused by germs breeding in foul ponds in the city streets either at common law or under a statute which gives a cause of action to persons who have received bodily injury or damage in his person or property through defects in streets. The doctrine contended for by plaintiff, it is said, "would throw wide open the flood gates of litigation, and funds raised by taxation for public improvement would be dissipated in tort suits." (*Triplett v. Columbia*, 111 S. C. 7, 96 S. E. 675, 1 A. L. R. 349.)

Whether a city is acting in a governmental or business capacity is, as we have seen, a question not always easy of decision. In *Jones v. Sioux City* (— Ia. —, 170 N. W. 445) municipal activity in carrying policemen to their beats belongs to the business and not to the governmental side. Accordingly, the city is liable for injuries due to the negligence of the driver of a city automobile while transporting the policemen, though the policemen were government agents.

Liability of Ministerial Officer.—A volunteer fireman was removed from a civil-service position for political reasons and without a hearing. He secured reinstatement by mandamus and sued the official who wrongfully

removed him for the loss of salary. It was held that the statute prohibited removal except for cause shown after a hearing; that the defendant acted in a ministerial capacity in making the removal; that he did not act in good faith and with proper motive; and that he was answerable for this misfeasance in damages to plaintiff for the amount of salary of which he had been wrongfully deprived. (*McGraw v. Gresser*, 226 N. Y. 57, 123 N. E. 84.)

Illegal Strikes and Boycotts.—A strike was held illegal in Massachusetts upon the following facts. Rice & Hutchins, shoe manufacturers, had agreed to pay the Shoe Workers' Protective Union certain prices for certain work but had not agreed to give all their work to this Union or to employ only union men. They employed a non-union man and the Union struck to compel Rice & Hutchins to dismiss him. He brought a bill to enjoin them from continuing the strike and was successful, though it was found as a fact that the strike was not because of malice or illwill against plaintiff or a desire to injure him personally, but solely for the purpose of compelling Rice & Hutchins to employ only union men. If Rice & Hutchins had contracted to give all their work to the union, the strike would then have been legal. (*Smith v. Brown*, 232 Mass. —, 121 N. E. 814.)

Trade unionists were enjoined from boycotting plaintiff because it would not insist upon its employees joining a teamster's union (*Auburn Draying Co. v. Wardell*, 227 N. Y. 1, 124 N. E. 97). Said the court:

On the part of the defendants there was organized coercion of the plaintiff into compliance with the demand of the unions that it compel its employees to join Union No. 679, by combining to compel third persons from having any business relations with it. The defendants were an organized combination, with unified intent and purpose, causing irreparable damage to the business and property of the plaintiff. The law should be and is, that the means were unjustifiable and unlawful, and the defendants should be enjoined from using them.

Misrepresentation of Age.—If a parent induces the employment of his child by falsely asserting that he has attained the statutory age for the

work, and the employer is compelled to pay damages to the minor for injuries received in the service because he was employed in violation of the statute, the employer is entitled to recovery over against the father (*Styrk v. Unichowicz*, 167 Wis. 265, 167 N. W. 246). The case is distinguished from an earlier one holding that a false representation of his age by the infant will not bar his recovery against the employer. That was based upon the doctrine that public policy forbids that an infant should be capable of dispensing with statutory provisions intended for his benefit (*Statz v. F. Mayer Boot & Shoe Co.*, 163 Wis. 151, 156 N. W. 971, Ann. Cas. 1918, B. 675). That the father's false statements in such a case bar his recovery of damages for injury to the child while in defendant's employment, though local statutes make such employment criminal on the part of the defendant, is the doctrine announced in *Majors v. Allen Mfg. Co.* (144 La. —, 80 So. 549).

Master and Servant.—A chauffeur is not bound to drive his master's car by the most direct route to a garage. Whether in driving by a longer route he is so far deviating from his line of duty as to cease to be the representative of his master will depend upon various circumstances. In a recent case the Supreme Court of Massachusetts ruled that it was for the jury to decide whether the longer course chosen by the chauffeur had advantages over the most direct route because of better conditions of pavement, freedom from street car or traffic obstructions, or of other things conducive to safety, ease, and speed. All of these should be taken into account in determining whether there had been a deviation. (*Mathewson v. Edison Electric Co.*, — Mass. —, 122 N. E. 743.)

A public officer is not the master of a clerk or assistant whose appointment is authorized by law. Such subordinate is himself a public official. If, however, the superior officer, on his account and without authority of law, appoints or employs such aid, he becomes the master and personally liable for the assistant's conduct, under the doctrine of *respondet super-*

ior. (*State v. Kolb*, — Ala. —, 78 So. 817, 1 A. L. R. 218.)

A person has a legal right to hire others to help him in expelling a dangerous mob from his premises. If he does not conceal from these others employed the facts of the situation and uses reasonable care to protect them from injury, he is not liable for harm done them by the mob. The danger is obvious from the terms of the employment and the nature of the service. (*Manwell v. Durst*, — Cal. —, 174 Pac. 881, 1 A. L. R. 669.)

The owner of an office building has been held liable in damages to a tenant whose valuable papers were destroyed by the janitor, who mistook them for waste paper while cleaning the office. This act of the janitor was done in the scope of his employment and while performing a duty owing by the owner to the tenant. (*Weiss v. Gordon*, — Tex. Civ. App. — 209 S. W. 486.)

An adult son, who is permitted to use for his own purposes his father's car, does not become the father's servant by reason only of the father's presence in the car, when the son's negligence inflicted injury upon a third person (*Zeeb v. Bahnmaier*, 103 Kas. 599, 176 Pac. Sec. 26).

Negligence.—The liability of a water company to the consumers of its supply is carefully considered in *Hamilton v. Madison Water Co.* (116 Me. 157, 100 At. 659, Ann. Cas. 1918, D 853). Plaintiff claimed that he became ill from typhoid fever caused by defendant's infected water supply. He was not bound to show by positive and direct evidence that the disease was caused by the water. Circumstantial evidence was sufficient. The company is held to a high degree of faithfulness in furnishing wholesome water. It is not a guarantor that the water is pure and free from infection, but

it is bound to use reasonable care in ascertaining whether there is a reasonable probability that its water supply may be infected with a communicable disease from causes which are known to exist, or which could have been known or foreseen by the exercise of such care; and if the exercise of such care would have disclosed a reasonable probability of such infection, then it becomes the duty of a water company to adopt whatever approved precautionary measures

are, under the circumstances of the case, reasonably proper and necessary to protect the community which it serves from the risk of infection.

A common carrier is under no legal duty to its passengers to print notices in any language but English, forbidding them to ride upon the platforms while the train is in motion, unless the statute requires the use of other languages (*Bane v. Norfolk & Western Ry.*, 176 N. C. 247, 97 S. E. 11, 2 A. L. R. 90).

Does a spectator at a baseball game take the risk of being hurt by a foul ball when he chooses a seat that is not protected by a screen? Not if the jury find that he acted in a reasonable manner, according to *Kavafian v. Seattle Baseball Association* (— Wash. —, 177 Pac. 776.) The jury found in that case that plaintiff's conduct was reasonable upon the following state of facts. Defendant had screened a part of the grand stand, and plaintiff paid an extra charge for admission to the grand stand, but was not advised that the unscreened portion where he sat was dangerous. He had a verdict for \$1,000.

A person using a public street is not guilty of contributory negligence because he fails to keep a lookout for vehicles which are on his side of the street in violation of traffic regulations (*Dier v. Vorhees*, — Mich. —, — N. W. —). In this case a bicyclist was proceeding north on the right-hand side of a street having two street-car tracks through the middle. The traffic regulations required vehicles to keep to the right of the tracks. He was injured in a collision with a vehicle going in the opposite direction to him on his side of the street, and it was claimed, but unsuccessfully, that he was precluded from recovery because he was not keeping a lookout for vehicles thus wrongfully on his side of the street.

Massachusetts continues to recognize the triple degrees of slight, ordinary, and gross negligence. In *Altman v. Aronson* (— Mass. —, 121 N. E. 305) gross negligence is defined as "very great negligence, or the absence of slight diligence, or the want of scant care, but falling short of such reckless disregard of probable consequences as is equivalent to will

full and intentional wrong." Such negligence subjects a gratuitous bailee to liability.

Defamation.—The old doctrine that a corporation cannot be sued for slander because an artificial person cannot speak was repudiated, as it ought to be, in *Cotton v. Fisheries Products Co.* (177 N. C. —, 97 S. E. 712). The manager of defendant charged plaintiff with larceny of the company's property. He joined the manager, the president, and the corporation as defendants, and the court held that he stated a good cause for action against all three. The voice of the manager is the voice of the corporation, when used in its behalf and within the scope of his authority.

Plaintiff sued the defendant for publishing the statement that she was not reappointed supervisor of music in the public schools because of incompetence, claiming that the statement was an actionable libel. It was held that the language should be construed as the ordinary person would understand it, that so construed it referred not simply to plaintiff's lack of musical culture, but to her unfitness because of her manners, character, or self-control, and consequently it would be a justification for defendant to show that plaintiff had a vexatious and perverse temper, illtreated her associates, antagonized the rules, and willfully inconvenienced her superiors. (*Cafferty v. Southern Tier Publ. Co.*, 226 N. Y. 87, 123 N. E. 76.)

Passenger Elevators as Common Carriers.—The decisions of our courts on passenger elevators as common carriers are carefully considered in *Murphy's Hotel v. Cuddy's Administrator* (— Va. —, 97 S. E. 794). It is said to be the holding of the courts of last resort in all states but three and of the U. S. Supreme Court that one who maintains a passenger elevator is a common carrier; that he is not an insurer of safety but is bound to exercise care varying with the risk; and that the doctrine of *res ipsa loquitur* applies in this sense, that the presumption of negligence arises from the nature of the accident and the circumstances of the case.

Remote Consequences.—Whether plaintiff's harm is the legally direct or the remote consequence of defendant's wrongdoing continues to give the courts trouble, as shown by *Justesen v. Pennsylvania Ry.* (92 N. J. L. 257, 106 At. 137). Plaintiff was assured by defendant's agent that the Virginia quarantine against infantile paralysis had been raised and that she and her child could travel from New York to Petersburg without interference. The statement was incorrect, and she and her child were removed from the train of the Richmond, Fredericksburg & Potomac Ry. by the conductor and obliged to stay in Washington until the next day, when they returned to New York. She claimed damages for distress, mortification, and sickness caused by her expulsion from the train. The court held that these were not the natural and proximate result of defendant's wrongdoing. It was not to be expected by the Pennsylvania Ry. that her expulsion at Washington would be such as to produce the alleged consequences. Even if the expulsion might have been expected to produce them, it was due to the intervention of an independent third party, the conductor of another company, and hence the causal connection between plaintiff and defendant was broken. If the test of legal cause suggested by Prof. Jeremiah Smith had been applied plaintiff should have recovered. It is as follows: "Defendant's wrongdoing is the legal cause when it is shown to have been a substantial factor in the damage complained of."

In an earlier case the same court ruled that an injury was the proximate result of the defendant's negligence on the following state of facts. Plaintiff, hit by a mop carelessly handled by defendant's servant, fell, struck against a seat, and sustained an injury which was followed by an ulcerated stomach, severe pains, and sickness. It was immaterial that plaintiff was suffering from a latent disease which was only accelerated by the fall. She was entitled to recover damages for the entire subsequent condition, unless defendant was able to show how much plaintiff would have suffered had the injury not been

inflicted. (*Hahn v. D. L. & W. Ry.*, 92 N. J. L. 277, 105 At. 459.)

The finding of a jury that plaintiff's injury was the proximate result of his own negligence was justified by evidence that he had left his seat in the car after a station was called and was standing on the step of the coach when struck by a derailed car. Had he remained in his seat he would not have been hurt. (*Bane v. Norfolk & Western Ry.*, 176 N. C. 247, 97 S. E. 11, 2 A. L. R. 90.)

Right of Privacy.—The right of privacy is recognized and enforced by the Supreme Court of Kansas in *Kunz v. Allen* (102 Kansas 883, 172 Pac. 532). While plaintiff was in defendant's store, they had moving pictures taken of her without her knowledge and used them in advertising their business. She claimed that this made her the common talk of the people who believed that she had been hired to pose for the pictures and was an invasion of her right of privacy. Her claim was sustained by the court, which granted her a recovery without proof of special damages. It reaffirmed the view that

the publication of a picture of a person, without his consent, as a part of an advertisement for the purpose of exploiting the publisher's business, is a violation of the right of privacy of the person whose picture is reproduced. This right has its foundations in the instincts of nature . . . and is therefore derived from natural law . . . one has the exclusive right to his picture as a property right of material profit, and unless he has expressly or implicitly consented to its use by others, may sue at law for damages for the invasion of the right.

Torts against Infants.—When a party wrongfully injures an infant he may be and often is liable for two torts, one against the infant and one against his parent. Accordingly, the fact that the infant has recovered heavy damages against the wrongdoer for injuries to his person has no legal effect upon a suit brought by the father for loss of the son's services due to the injury. The two causes of action are distinct. Each must be proved as though the other had not been brought, and it is immaterial that the action on behalf of the child was instituted by the father as guardian *ad litem*. (*McGreevey v.*

Boston Elevated Ry., — Mass. —, 122 N. E. 279.)

Unfair Competition.—Defendant had been employed by plaintiff as confidential office man. After leaving the employment he solicited business from plaintiff's customers whose names and addresses he had procured while sustaining the confidential relation as agent. He was enjoined from this solicitation of business for his rival enterprise on the ground that his conduct amounted to unfair competition. The elements which constituted the illegality of defendant's conduct were the use in business competition with plaintiff of knowledge of his affairs gained by means of the confidential relation existing between them. (Davis & Co. v. Miller, — Wash. —, 177 Pac. 323.)

PRACTICE

Abuse of Process.—It is not always easy to distinguish between abuse of process and the malicious use of process in a particular case, but the principle to be applied is admirably stated in *Glidewell v. Murray Lacy & Co.* (— Va. —, 98 S. E. 665) as follows: "The distinctive nature of an action for abuse of process, as compared with actions for malicious prosecution and false imprisonment, is that it lies for the improper use of a regularly issued process, not for maliciously causing process to issue, or for an unlawful retention of the person." In a case for the abuse of process the plaintiff must allege and prove that the process, after being properly sued out, was maliciously misused or abused.

Adjudication in Bankruptcy.—The decision in *Gratiot County Bank v. Johnson* (249 U. S. 256, 39 S. C. 263, reversing 193 Mich. 452, 160 N. W. 544) limits narrowly the doctrine that an adjudication in bankruptcy is a judgment *in rem*, overrules a number of decisions in the lower Federal courts, and explains unfortunate dicta in opinions of Supreme Court justices. The adjudication is binding not only on parties to the proceedings but upon all persons, "as establishing the fact that the trustee is properly in office and clothed with

a title to all the estate that was the bankrupt's." But it does not bind strangers "as to the facts or as to the subsidiary question of law on which it was based." Hence it is not conclusive evidence against one not a party or privy to the proceedings that the bankrupt was insolvent during the period alleged in the petition. For an admirable discussion of the case the reader is referred to 19 *Columbia Law Review*, 313.

Contempt of Court.—That the limits of constructive contempt are wide is shown by *In re Hand* (89 N. J. Eq. 469, 105 At. 594). A party who had been enjoined from removing liquor from his saloon violated the injunction. While proceedings were pending for his punishment therefore as a contempt of court, he committed assault and battery upon one whom he mistakenly supposed had informed against him. Therefore he was held guilty of contempt of court in making this attack, on the ground that his conduct was intended to obstruct the due administration of justice, as it was virtually a warning that any one telling the truth about him to the court would be assaulted.

Disqualification of Jurors.—That one who has bet that a person charged with murder will be convicted is thereby disqualified to sit as juror on the trial is not a matter for doubt. Yet the question was carried to the highest court in Vermont. The court declared that it admitted of but one answer and set aside a verdict of conviction rendered by the jury of which the person betting was a member. The amount of the wager was considered immaterial, and the court refused to inquire whether the other jurymen were influenced or not by the betting member. (*State v. Warm*, — Vt. —, 105 At. 244, 2 A. I. R. 811.)

Expert Testimony.—Although the State may compel persons to testify in matters affecting the common weal, as in criminal prosecutions, where it is vitally interested as sovereign in enforcing law and securing justice for the criminal, it will not exercise this power in behalf of a private litigant. He has no more right to compel a citizen to give up the product of his brain than he has to compel the giving

up of material things. It is matter of common bargain between the litigant and the expert. (*Pennsylvania Co. for Insurers v. Philadelphia*, 262 Pa. 439, 105 At. 630, 2 A. L. R. 1573.)

Injunction.—A novel use of the extraordinary remedy of injunction was attempted by the Attorney-General of Nebraska when he sought to enjoin employers from closing shops in order to shut out union men and to enjoin employees from striking in order to enforce a closed-shop policy, on the ground that such conduct on the part of employers and employees was a disturbance of and interference with the general public (*State v. Employers of Labor et al.*, 102 Neb. 768, 169 N. W. 717). The court could find no authority for granting the injunction on these grounds. However, under state statutes similar to the Sherman Anti-Trust Act it had power to enjoin persons whose acts directly operate to restrain trade and commerce. As it was shown that the Teamsters Union conspired and did prevent the transportation of goods and merchandise in Omaha by assaults, threats, and other disorderly conduct, an injunction against their continuance of such conduct was sustained.

Another daring venture in the employment of the writ is reported in *Roger v. Pryor* (— Neb. —, 169 N. W. 257), in which a practicing attorney enjoined another from engaging in the legal profession within the county of plaintiff's residence. Defendant entered plaintiff's office upon graduation from a law school under a written agreement that in consideration of plaintiff's paying him a fixed salary for a specified period he would not engage in the independent practice of his profession within the county for 10 years. Injunction was granted, although plaintiff did not show that he would be actually damaged by defendant's breach of the contract.

Mandamus to Civil Service Commissions.—In *People ex rel. Finnegan v. McBride* (226 N. Y. 252, 123 N. E. 374) the New York Court of Appeals after an exhaustive review of previous decisions, holds that the Civil Service Commission is neither a judicial nor

a quasi-judicial body, and that in classifying positions in the service its acts are of a legislative or an executive rather than of a judicial character. Hence, although it has the power to reconsider and revoke its former action in establishing an eligible list, it must not do this arbitrarily. The list may be set aside or modified if it was the result of illegality, irregularity in vital matters, or fraud. In the absence of these it is the clear legal duty of the Commission, having once established a list, to continue it in existence for the period fixed by its rules. A candidate whose rank in the list is by a change of rule (not for fraud, illegality, or serious irregularity) lowered from fourteenth to twenty-third place is entitled to a mandamus reinstating her to her original rank.

Privileged Communications.—A much criticized decision, in which there was a vehement dissent by three judges, is that of *Lindsey v. People* (— Colo. —, 181 Pac. 531), holding that a statement by a boy of 12 to a juvenile-court judge that he had killed his father was not a privileged communication. On the trial of the boy's mother for murder of the father the judge refused to disclose the communication and was held punishable for contempt of court.

Quite a different situation is presented in *Re Estate of J. M. Cohen* (105 N. Y. Misc. 724, Westchester Co. Surrogate's Court), in which an application to obtain the depositions of a former surrogate's clerk and stenographer as to what occurred in the consulting room while the surrogate was considering and preparing his decision which fixed the allowance to the proponent of the will was denied. These communications were held confidential and privileged against such inquiry. The applicant's doctrine "would subject every judicial officer to liability to be called as a witness, to the injury of public business, and would give disappointed suitors an opportunity to harass and obstruct judicial officers."

In *Kintz v. Harriger* (— Ohio —, 124 N. E. 168) the question was whether perjured testimony given under oath before a grand jury is privileged. The trial court held it was

not privileged; the Ohio Court of Appeals held that it was; and the Supreme Court decided that it was not. This conclusion was justified in part by a constitutional provision that "all courts shall be open, and every person, for an injury done him in his land, goods, person or reputation, shall have a remedy by due course of law." The weight of judicial authority both in England and in this country appears to be with the Court of Appeals and opposed to the view of the Supreme Court.

Treatment of Hostile Witnesses.—Although a hostile witness may be pressed severely in what is really cross-examination by the party putting him on the stand, it is not proper for such party to attack the credibility of the witness by general character evidence tending solely to show him to be untruthful and unworthy of belief. By calling the witness the party represents him for the occasion and purposes of the trial as worthy of belief, although not as a person of good moral character. If, being disappointed in what he gets from the witness, he attempts to impeach his credibility, it is reversible error. (*People v. Minsky*, 227 N. Y. 94, 124 N. E. 126.)

STATUS

Adoption.—The fact that parties have entered into a binding contract for the adoption of a child and assume that relation does not create the legal relation of parent and child. The adoption proceedings must conform to the requirements of statutory law upon the subject or a legal adoption is not effected. But the breach of the contract by the obligor gives to the obligee a right to recover from the former's estate the fruits of a legal adoption. (*Barney v. Hutchinson*, 25 N. M. —, 177 Pac. 890.)

Husband and Wife.—Actions for the alienation of a spouse's affections are not infrequent, but are brought usually against the party causing the alienation. In *Claxton v. Pool* (— Mo. —, 197 S. W. 349) suit was brought against the husband of the wrongdoer. It failed for two reasons: first, because the defendant was

not shown to have been a conspirator with his wife in wronging the plaintiff—at most he had only known of and approved her conduct; and second, because the married-woman's legislation of the state had relieved the husband from liability for the wife's torts.

Marriage and Divorce.—That the adoption of the Uniform Marriage and Divorce Acts in all the states would result in benefits to society and relief to the courts is shown by a recent Pennsylvania decision (*In re Grossman's Estate*, — Pa. —, 106 At. 86). Grossman and his wife, residents of Pennsylvania, entered into an agreement of separation. A few months afterward he secured a divorce in Nevada without service of process on the wife and without her appearance in the action. Thereafter he married again and died. It was held that the second wife acquired by the marriage no right in Grossman's estate, as the second marriage was invalid in Pennsylvania.

It is sufficient ground for annulling a marriage that the woman entered into the contract with the secret determination to refuse marital intercourse and adhered to such refusal at all times after marriage (*Millar v. Millar*, 175 Cal. 797, 167 Pac. 394, Ann. Cas. 1918, E 184).

That a valid marriage can be entered into by the exchange of promises through the mail is the doctrine of *Great Northern Railway Co. v. Johnson* (254 Fed. 683). In this case the man, who resided in Minnesota, sent to the woman, who resided in Missouri, a written agreement that the parties should from its date assume the relation of husband and wife. He signed it in duplicate and the woman signed both papers and returned one to the man. It was held that the contract was governed by the law of Missouri, where the acceptance was mailed, but as both states recognized common-law marriages, no question in the conflict of laws arose. The transaction would not amount to a valid marriage under the Uniform Marriage License Act referred to earlier in this article.

The statutes of Virginia provide that a divorce may be decreed to the party abandoned "where either party willfully deserts or abandons the other

for three years." The husband deserted the wife, and within three months thereafter he became permanently insane. As the ground for divorce does not arise from mere abandonment, but that must be wilfully continued for three years, and as an insane person cannot form an intent to continue the abandonment, the court held that the wife's cause of action had not occurred in this case and that her complaint should be dismissed. (*Wright v. Wright*, — Va. —, 99 S. E. 515.)

Medical Practitioners.—The attempt to hold a trained nurse to be engaged in the practice of medicine failed, as it clearly should have failed, in *Frank v. South* (175 Ky. 416, 194 S. W. 375, Ann. Cas. 1918, E. 682). Quite different is the case of a graduate of the American College of Neuropathy who has over his office the sign "Dr. J. A. Seibert, Neuropath," and who meets patients and treats them by manipulation of parts of the body affected by disease (*Commonwealth v. Seibert*, 262 Pa. 345, 105 At. 507). A Pennsylvania statute prohibits any one from practicing medicine without a license. Dr. Seibert claimed that he was not within the statute, but was treating patients by a system known as neuropathy, in accordance with which diseased portions of the body are restored to health by regulating the blood supply to the involved areas through the nerve mechanism. The court held that the term medicine was used in the statute in a comprehensive sense and included every form of the healing art. It also upheld the statute as a valid exercise of the police power.

MISCELLANEOUS

Damages.—Whether punitive damages are recoverable in a particular case is a question upon which courts differ. The New York Court of Appeals has laid down the rule that they are recoverable only by the person directly affected by defendant's misconduct. (*Tidd v. Skinner*, 225 N. Y. 722, 122 N. E. 247). In this case the widowed mother of a son whose death was due to the use of heroin sold to him by defendants re-

covered a verdict of \$2,000 compensatory damages and \$1,000 punitive damages. There was evidence from which the jury could find that defendants knew of the excessive use of the drug by the son and the harmful effects upon him. Applying the rule stated above, however, the court held that the mother was entitled to compensatory damages only.

The pledgee who wrongfully converts collateral is liable to the pledgor for its value less the secured debt (*Brightson v. Clafin*, 225 N. Y. 469, — N. E. —). Although the decision has been criticized as violative of technical rules of law, it is to be commended as an example of judicial determination to render justice speedily and in a single action by disregarding technicalities.

Protecting the Credulous.—The tendency of courts to follow the moral sense of the community rather than the technical rules of law in determining whether conduct is fraudulent is brought out clearly in *Thomas v. Moon* (— Wash. —, 177 Pac. 734). A vendor's bill to rescind a transfer of property was sustained, although his stupidity had largely contributed to his being overreached by the defendants. Early law did not treat an oral cheat as a crime. Later it was held that misrepresentations were not actionable unless such as were calculated to deceive persons of ordinary prudence. Now the law aims to protect the weak and the credulous against the unscrupulous.

Waiver and Estoppel.—The distinction between these much discussed terms is stated with considerable fulness in *Daniels Lumber & Mfg. Co. v. Gallivan Building Co.* (— N. C. —, 97 S. E. 718), a decision worthy of careful reading. "Waiver" is defined as "the voluntary surrender of a right, while estoppel is the refusal to permit its assertion because of the mischief that has been done." A jury may infer waiver by a building contractor who inspects materials and is not prevented by concealment or otherwise from discovering defects.

Naturalization.—The United States statutes require an alien applying for admission to citizenship to show that for five years previous he "has behaved as a man of good moral char-

acter, and well disposed to the good order and happiness" of the country. An applicant was denied naturalization because as a saloonkeeper he had habitually violated the Sunday-closing law of Illinois, although the law was not enforced by city or state officers and it was necessary to keep his place open in order to retain his trade against competition (*U. S. v. Gerstein*, 284 Ill. 174, 119 N. E. 922, 1 A. L. R. 318). The court declared that

the binding force and effect of a law, and the duty of persons to obey it and of courts to enforce it, cannot be made to depend upon the public sentiment as to its wisdom or unwisdom, or on the opinion of a court whether it is good or bad law. If it is a law, persons are bound to obey it and courts to enforce it.

Workmen's Compensation.—The New York Workmen's-Compensation statute provides that "in case of an injury resulting in serious facial or head disfigurements, the commission may make such awards or compensation as it may deem proper and equitable in view of the disfigurement,

but not to exceed \$3,500." The commission awarded a disfigured claimant \$2,500. Upon appeal two judges voted to remit the case to the commission for more facts as to the claimant's loss of earning power, two judges were of the opinion that presumptively the award was for loss of earning power, while three members of the court had no doubt that pain of body and mind was a proper subject of compensation, although they also held that facial disfigurement is related to earning power, in some employments causing almost a total disqualification. (*Sweeting v. American Knife Co.*, 226 N. Y. 199, 123 N. E. 82.)

A liberal construction was given to the phrase, death "arising out of and in the course of employment," in *Cranney's Case* (— *Mass.* —, 122 N. E. 266). The head waiter at a hotel discharged a subordinate for good cause. Later the discharged man returned to the premises and killed the head waiter, whose death was held to come within the provision for compensation.

CRIMINAL LAW

LEGISLATION

Federal Legislation.—Federal legislation has added but little to the volume of criminal law except in connection with the internal-revenue and income taxes (Ch. 18; see also XIII, *Public Finance*); with violation of statutes regulating the purchase and sale of food commodities (Ch. 125; see also I, *Congress*); and with violations of the prohibitory liquor law (see *ibid.*).

State Legislation: Anarchist Emblems.—Criminal statutes appearing in the state session laws of 1919 are especially interesting, as they show certain waves of popular sentiment sweeping over the entire country. An example is afforded by Ch. 231 of the Laws of Delaware, which declares it a high misdemeanor to display any flag or ensign bearing an inscription opposed to organized government and subjects the offender to a fine of not more than \$2,000, or imprisonment not exceeding 15 years, or to both. With variations this statutory prohi-

bition appears in Idaho (Ch. 96), Illinois (p. 421), Indiana (Ch. 125), the most elaborate in its provisions, Michigan (No. 104), Minnesota (Ch. 46), Nebraska (Ch. 208), New York (Ch. 409), Oklahoma (Ch. 83), Oregon (Ch. 35), and Vermont (No. 195). The constitutionality of a pioneer form of this legislation was sustained in *Commonwealth v. Karronen* (219 Mass. 30, 106 N. E. 556). The court held the statute to be a valid exercise of police power. It did not interfere unreasonably with the liberty of the citizen, and it had a rational connection with the preservation of public safety.

Criminal Syndicalism.—Another statute which reappears in many states defines and punishes criminal syndicalism. Ch. 70 of the Laws of Oklahoma defines the crime as the doctrine which advocates crime, physical violence, arson, destruction of property, or sabotage as a means of accomplishing or effecting industrial or political ends for profit. It defines sabotage as a malicious, felonious, in-

tentional, or unlawful damage, injury to, or destruction of real or personal property of an employer or owner by his employees or the employees of others, or by any persons at their own instance or at the request of others. It is punishable as a felony with heavy fine and imprisonment. The assemblage of persons for the promotion of sabotage or syndicalism is also a crime, as is the permitted use of one's premises for such assemblages. This legislation, varying somewhat in details, is found in Alaska (Ch. 6), Hawaii (Act 186), Illinois (p. 420), Michigan (No. 255), Nebraska (Ch. 261), and Oregon (Ch. 12).

The Minnesota statute (Laws of 1917, Ch. 215) declaring syndicalism a crime and providing for the criminal punishment of teachers of sabotage or those advocating other methods of terrorism, or the destruction of life or property for the accomplishment of social, economic, or political ends, has been held not obnoxious to the state or Federal constitution, but clearly within the restrictive power of the legislature (*State v. Moilen*, 140 Minn. 112, 167 N. W. 345, 1 A. L. R. 331). Said the court:

Sabotage as practiced by those advocating it as an appropriate and proper method of adjusting labor troubles, embraces among other lesser offensive acts, the willful and intentional injury to or destruction of the property of the employer, in retaliation for his failure or refusal to comply with wage or other kindred demands. It amounts to malicious mischief, and is a crime at common law as well as by statute. The methods of terrorism referred to in the statute have close relation to sabotage, and are practiced for the purpose of intimidation, and to coerce employers into a compliance with labor demands. Methods of that sort are equally unlawful and open to legislative condemnation.

Criminal Code Revisions.—Nebraska's Session Laws of 1919 contain a very radical revision of the statutes relating to crime with many additions to the older laws. Ch. 190 covers many topics. Title III gives to the Department of Agriculture very extensive police power to protect the interests of the public in game and fish. Licenses to hunt or fish are prohibited to those not citizens of the United States. Severe penalties are provided for offenders and broad powers for their detention and

punishment are given to the Department officials. Title IV arms the Department of Labor with similar authority for the enforcement of drastic regulations. Ch. 14 reproduces Sabbath-breaking legislation from Puritan New England but excepts from its provisions those who observe Saturday as their sabbath, also families who are emigrating, as well as watermen, ferrymen, the keepers of toll bridges, and railways running necessary trains. It also permits public dancing on Sunday in cities of the metropolitan class having a public-welfare board with authority to regulate such dancing. Ch. 195 provides that if two or more persons conspire to commit a felony or to defraud the State of Nebraska, and one or more persons do any act to effect such conspiracy, each person shall be fined not more than \$10,000, or imprisoned not more than two years, or both. It declares an emergency to exist demanding that the Act go into effect as soon as approved. It would be interesting to know what conspiracies called for this urgent statute. Ch. 212 excites no such curiosity. It is an act for the eradication of grasshoppers by the use of poison. If the owner of the land does not comply with the law, not only may a public official do the poisoning and charge the expense on the land, but violations of the statute are misdemeanors finable with \$50 to \$100 and costs of the proceedings. If the land is rented, notice to the tenant is notice to the owner. As between them it is the duty of the owner to supply the poison and of the tenant to apply it. By Ch. 227 nepotism is made unlawful, except when the relative appointed has a salary under \$800.

A revision of statutes relating to "Crimes and their Punishment" in Missouri is found in the Session Laws pp. 247-262. Particularly minute and severe are the regulations of the employment of children. Embezzlement by a bailee is made punishable as theft. Bigamy is defined so as to include conduct not punishable at common law.

Protection of Business.—States do not hesitate to exercise the police power in promotion of the business

interests of the people. Ch. 573 of the Laws of California is an example. In order "to promote the development of the California fruit and vegetable industry in state and interstate markets and to protect the state's reputation," standards are prescribed and penalties are provided and drastic powers of inspection are given to officials. To this class belongs Ch. 58 of Alaska Laws, making it a misdemeanor to obstruct, divert or pollute salmon-spawning streams or waters, and Ch. 197, punishing the sale of petroleum products without inspection and the sale of inferior products as those which have been inspected; No. 4 in South Carolina requiring cotton seed to be labelled so as to show the percentage of ammonia which it contains; and Chs. 4 and 82 in Utah, providing, respectively, for the inspection of apiaries and the punishment for selling adulterated or misbranded insecticides and fungicides, and Ch. 47, regulating the taking of fish and game.

Protection of Health and Morals.—Statutes for the protection of health and morals multiply yearly; witness Ch. 20 of Alaska Laws and Ch. 234 of Delaware for the abatement of houses of prostitution, with provisions that common fame is competent evidence in favor of the charge; also Ch. 56 of Alaska as to gambling houses, and Ch. 97 of Idaho on the same topic.

Theft of Automobiles.—The extent of automobile stealing is shown by the numerous statutes passed and proposed for the prevention and criminal punishment of such thefts. The validity of the Illinois statute on the subject was assailed but upheld in *People v. Fernow* (286 Ill. 627, 122 N. E. 155). Its purpose was not only to prevent the larceny of automobiles, but also to prevent those who used these cars in the commission of a crime from escaping detection by changing the manufacturer's serial number and thus making difficult the identification of the car. Statutes varying in form but having the same purpose are found in Idaho (Ch. 99), Missouri (Sec. 4536, p. 252), which is declared an emergency law because of no adequate law in force, Nebraska (Ch. 160), Oklahoma (Chs. 102 and

290) Texas (Ch. 138), and New York (Ch. 379).

Miscellaneous.—That certain offenses are unusually common in particular states would seem to be indicated by statutes that are peculiar to those states. Ch. 91 in Arizona regulates with strictness the business of making small loans and provides severe punishment for its infraction. Ch. 92 makes the sale, encumbrance, concealment, or removal by a conditional vendor of articles which he has received in that capacity a felony. Illinois (p. 572) makes it a misdemeanor to willfully destroy or permit to waste food of the value of \$25 or more with intent to cause scarcity or to increase the price. Indiana by Ch. 166 provides for the punishment as a misdemeanor of the sale of water for human consumption which has not been analyzed and certified as fit for use. Minnesota by Ch. 93 provides for punishing those guilty of seditious and disloyal acts, language, and propaganda by fines up to \$10,000 and imprisonment not exceeding 20 years. Missouri (p. 252) punishes criminally the soaping of tracks or otherwise obstructing railroad operations; by Sec. 4464 (p. 257) subjects the owner of mischievous animals to liability of conviction for manslaughter of persons killed by them; by Sec. 4465 (p. 257) subjects a physician to like liability by causing death without design by misconduct while drunk; and by Sec. 4580 (p. 259) declares various actions which are only trespass at common law to be offenses against public and private property. Oklahoma (Ch. 168) makes it a felony to use "Trust" or "Trust Co." when the person or corporation using the title does not possess the capital required by law to do a trust business. South Carolina (No. 107) requires separate accommodations for white and colored passengers in street cars, gives a conductor the powers of police to carry out the provisions of the Act, and punishes violations of them by fine of not more than \$100 and not more than 30 days in prison or at work on the chain gang.

Delaware appears to be the first state to legislate for the enforcement of the Eighteenth Amendment (Ch.

239), though Ch. 455 in Minnesota recognizes its existence.

JUDICIAL DECISIONS

Baggage Porters as Public Officials.—One result of transferring the management of the railroads to the U. S. Government during the war was the transformation of the baggage porter into a public official and the making of an attempt to bribe this mental a. crime under Sec. 39 of the Federal Criminal Code (U. S. v. Krichman, 256 Fed. 974). Said the court:

If we look at the purpose of the section, there seems to me every reason not to draw any line based upon the supposed inaptitude of the words "official function." The section is full of verbiage, no doubt, but its very presence shows its desire for comprehension. The draftsman certainly wished to include all efforts by corruption to impede the success of the United States in any of its enterprises.

Labor Laws.—Whether an employer violates the eight-hour law in the District of Columbia depends upon the character of his establishment. If he is a manufacturer, he is subject to one rule. If he is conducting a mercantile business, he is subject to a different rule. In *Hotchkiss v. District of Columbia* (44 App. Cas. D. C. 73, Ann. Cas. 1918, D. 683) it was held that one who employs a number of girls in making dresses for customers is engaged in a manufacturing and not a mercantile enterprise.

Conspiracy against Trade.—Wholesale dealers are held to violate the conspiracy laws of California when they enter into an agreement fixing the retail price of bread which they sell to retailers and bind themselves not to sell to any retailer who does not maintain such price (*People v. H. Jevne Co.*, — Cal. —, 178 Pac. 547).

Anti-Trust Laws.—The U. S. Supreme Court has declared (*U. S. v. Colgate*, 250 U. S. 300, 39 S. C. 465) that it is not criminal under the Sherman Anti-trust Act for a manufacturer to refuse to sell his goods to a dealer who has habitually resold them at prices lower than those fixed by the manufacturer if he does not require the dealer to agree not to sell below such price. Said the court:

In the absence of any purpose to create or maintain a monopoly, the Act does not restrict the long recognized right of trader or manufacturer engaged in an entirely private business freely to exercise his own private discretion as to parties with whom he will deal; and, of course, he may announce in advance the circumstances under which he will refuse to sell.

Transporting Liquor.—Homer Guder of North Carolina was *en route* from Baltimore, Md., to his house in Asheville, N. C. At Lynchburg, Va., a search of his suitcase revealed eight quarts of whiskey in his possession, and he was arrested for violation of the Reed bone-dry statute. He was acquitted on the ground that in transporting the liquor "through" a dry state he was not transporting it "into" the state. (*U. S. v. Guder*, 249 U. S. 373, 39 S. C. 323.)

The same statute was under consideration in *U. S. v. Hill* (248 U. S. 420, 39 S. C. 143), when the defendant was held to be a criminal under the Federal statute though his act was sanctioned by state law. He bought a quart of whiskey in Kentucky and took it with him to his home in West Virginia. The state prohibitory statute permits a person to bring in a quart of spirituous liquor once in 30 days for personal use. The Reed amendment makes it criminal for any one to transport in interstate commerce any intoxicating liquor into a prohibition state except for scientific, medicinal, or sacramental purposes. Hill's transportation of the quart of whiskey into the dry state of West Virginia was held to be within the Federal law which was paramount to the state statute.

Waiving Right to be Present at Trial.—The Supreme Court of Mississippi holds that even in a capital case the accused can waive his right to be present at the trial. It ascribes the old rule, which made his absence during any part of the trial reversible error in case of his conviction, to judicial disposition to protect the accused against the harshness of ancient criminal procedure. In the case at bar the voluntary absence of the accused was temporary, was known to the counsel, and no objection was made until after conviction. The conviction was sustained. (Thomas

v. State, 117 Miss. 532, 78 So. 147, Ann. Cas. 1918, E. 371.)

Anti-Tipping Laws.—The Iowa statute making it a crime for employees to accept tips but leaving employers free to receive them has been held void because it grants to employers special privileges or immunities in violation of the state constitution (*Dunahoo v. Huber*, — Ia. —, 171 N. W. 123).

Justifiable Homicide.—Is an officer who has a warrant for the arrest of one charged with a misdemeanor justified in killing such person when assailed by him? In *State v. Dunning* (— N. C. —, 98 S. E. 530) the misdemeanant, one White, was a violent and dangerous man when drunk, and being drunk on this occasion, violated several village ordinances, including several breaches of the peace. Defendant, who was constable and chief of police, having a warrant for his arrest, undertook to enforce it, when he was attacked by White with a drawn knife, and shot his assailant to subdue him, although defendant might have escaped from the room and escaped harm. The court held that it was defendant's duty to make the arrest, that he was not obliged to retreat but could stand and subdue his assailant, even if he had to kill him in so doing. This is in accordance with Sec. 1055 of the New York Penal Law, which declares homicide justifiable when committed by a public officer necessarily in overcoming actual resistance to the execution of legal process.

Crime and Immorality.—The distinction between immoral and criminal acts is brought out very clearly in the recent Georgia case of *McIntosh v. State* (— Ga. App. —, 98 S. E.

555). *McIntosh* intended to commit forgery by raising a check for \$2.60 to \$57.60. He altered the figures but left the words of the check unchanged. To an indictment for forgery he demurred, and his demurrer was sustained on the ground that the legal effect of the check had not been affected by the alteration of the figures, because of the rule that when the words and figures in a negotiable instrument differ, the words control. In the New York negotiable-instruments law (Sec. 36) the rule is stated to be that when there is a discrepancy between the words and the figures, the sum denoted by the words is the sum payable. In the Georgia case the would-be forger did not deceive the bank, for the discrepancy between the words and figures was discovered upon presentation of the check. *McIntosh's* guilt was moral, not criminal.

Evidence of Seduction.—That differences of opinion among judges are not confined to cases growing out of reformatory legislation is apparent from the New York case of *People v. Taleisnik* (225 N. Y. 489, 122 N. E. 615). Defendant was convicted of seduction under a promise of marriage. The conviction was affirmed by a unanimous Appellate Division, but the decision was reversed by a vote of four to three in the Court of Appeals, on the ground that the seduced female's evidence was not legally corroborated. The situation is one in which the majority of the Court of Appeals favors the strict enforcement of a harsh rule because it is ancient and sustained by precedent, whereas the minority of the Court and all the judges in the courts below favor its modification.

IX. PUBLIC RESOURCES AND PUBLIC WORKS

PUBLIC LANDS

MORRIS BIEN

Homestead Legislation.—Congress has been solicitous regarding the interests of the men who served in our military forces during the war, and on Sept. 29, 1919, passed an act to protect the interests of those who had been injured and were undergoing vocational rehabilitation. Any such persons who prior to entering upon such course had made entry or application for public lands under the homestead law or who had settled or may thereafter settle upon public lands will be entitled to a leave of absence from the land for the purpose of undergoing such training, and the period of such training shall be counted as constructive residence, but no patent is to issue to any such homesteader who has not resided upon, improved, and cultivated his homestead for a period of at least one year. On Feb. 25, 1919, Congress extended to persons engaged in the military and naval service in connection with the Mexican Border operations or during the war with Germany and her allies the privileges of existing laws under which credit is given on account of residence on homestead entries to those who had served in our Army and Navy. The General Land Office issued a circular (No. 641) under date of April 25, 1919 giving the regulations under the laws applicable to entries on public lands by soldiers, sailors, and marines who served during the operations on the Mexican Border and during the war with Germany.

On Feb. 25, 1919, Congress amended the Act of Aug. 22, 1914, which provided for leave of absence of entrymen from their entries for not to exceed five months in each year in one or two continuous periods, by providing that upon application of the entryman and on account only of climatic conditions making residence on the homestead for

seven months in each year a hardship, the term of residence might be reduced to not more than six months in each year over a period of four years or to not more than five months in each year over a period of five years, but the total residence required shall in no event exceed 25 months, not less than five of which shall be in each year.

On Sept. 29, 1919, an amendment was made in the law providing for stock-raising homesteads, passed on Dec. 29, 1916, so that any person who had made homestead entry of the usual character, which is limited to 160 or 320 acres, could take any additional lands within 20 miles of his original entry so as to make a total area of not exceeding 640 acres, but must take in any contiguous lands within that distance. This changed the provision of the original law which permitted the entryman to take only contiguous lands.

The year 1919 in certain parts of the Northwest was unusually dry, causing total or partial failures of crops and much loss of cattle besides imposing great hardships upon the land entrymen. An Act of July 24, 1919, provided that a homestead entryman may be excused from residence upon his homestead during the year 1919 when he found it necessary to leave his homestead to seek employment for the support of himself and his family.

Forfeiture of Coos Bay Wagon-Road Grant.—The grant which was made by Congress on March 3, 1869 for the building of a wagon road from Coos Bay to Roseburg, Ore., is claimed by the United States to be subject to forfeiture because of failure to comply with the provisions of the law for reasons similar to those involved in the Oregon & California Railroad Grant (A. Y. B., 1917, p. 531), and by Act

IX. PUBLIC RESOURCES AND PUBLIC WORKS

of Feb. 26, 1919, Congress authorized a settlement with the present holders of the grant, namely, the Southern Oregon Co., by which payment would be made to that Company of \$232,463.07 upon the transfer of title to the United States of the granted lands in the counties of Coos and Douglas in Oregon. Upon the acquisition of this title the suit now pending in the U. S. Supreme Court against the company is to be dismissed, and thereafter the lands are to be classified and disposed of in substantially the same manner as in the case of the Oregon-California grant lands.

Lands for School Purposes on Reclamation Projects.—The work of the Reclamation Service results in the development of considerable areas of land previously desert and to a large extent uninhabited. As a consequence there is always considerable difficulty in securing lands for school purposes. On Oct. 20, 1919, Congress sent to the President an Act, which became law without his signature, providing that the Secretary of the Interior may issue patents to school districts in any reclamation townsite located within the district to the extent of not more than six acres in each townsite, with the proviso that if any land conveyed under the Act shall cease entirely to be used for school purposes, the title shall revert in the United States. This legislation makes unnecessary special legislation for each of such cases.

Lands for City Water Supply.—The city of San Diego, Cal., found it necessary to utilize certain lands within the Cleveland National Forest and the Capitan Grande Indian Reservation for dam and reservoir purposes in connection with the city water supply. On Feb. 28, 1919, Congress passed an Act giving specified lands to the city for such purpose. The city is required to compensate for the rights of any Indians which may be involved in the use of the lands in the Indian reservations, and as further compensation is to furnish water for the War and Navy Departments at the base stations which are to be established in the vicinity of the city.

Arid Land Reclamation in Nevada.—An Act approved on Oct. 22, 1919, makes special provision to encourage

the sinking of artesian wells in order to irrigate the arid lands within the state of Nevada. Exclusive right to the use of a tract of 2,560 acres is given for a period not exceeding two years for the purposes of exploration. The permit is given upon condition that operations for the development of underground waters shall begin within six months and continue with reasonable diligence in case sufficient water has been developed to produce agricultural crops at a profit upon not less than 20 acres of land. The permittee shall be entitled to a patent for one-quarter of the land embraced in the permit. The remaining area covered by such permit shall be open to homestead entry of the usual form.

Status of Public Lands.—The following table shows the condition of the public lands on July 1, 1919, giving for each state the area of unappropriated and unreserved land on that date, divided into surveyed public lands and the total thereof:

	Surveyed, acres	Total, acres
Alabama	37,740	37,740
Arizona	7,142,565	20,714,785
Arkansas	300,599	307,599
California	15,654,405	20,239,977
Colorado	8,251,297	9,547,978
Florida	117,784	117,784
Idaho	6,745,861	10,688,608
Kansas	4,956	4,956
Louisiana	30,129	30,129
Michigan	73,106	73,106
Minnesota	240,314	240,314
Mississippi . . .	39,933	39,933
Missouri	78	78
Montana	4,182,643	7,133,594
Nebraska	92,826	92,826
Nevada	31,971,560	55,117,940
New Mexico . . .	14,033,148	18,785,723
North Dakota . .	90,547	90,547
Oklahoma	20,994	20,994
Oregon	13,412,269	14,161,101
South Dakota . .	531,810	561,209
Utah	14,217,026	31,321,987
Washington . . .	868,502	1,477,801
Wisconsin	6,934	6,934
Wyoming	20,721,658	22,387,979
Total	138,788,684	212,901,622

The unappropriated lands in Alaska are not included. The total area of Alaska is 378,165,760 acres, of which about 25,384,000 acres are reserved, 20,713,205 acres for forestry purposes. Approximately 1,144,449 acres have been surveyed under the rectangular system.

Disposition of Public and Indian Lands.—The total area of public and

Indian lands originally entered and allowed during the fiscal year ended June 30, 1919, was 11,863,672.28 acres, not including 137,403.27 acres embraced in finals not heretofore counted as original dispositions of land, an increase of 1,889,340.67 acres as compared with the area originally entered and allowed during the fiscal year 1918. This increase in allowed entries is due to the Stock-Raising Homestead Act of Dec. 29, 1916, 5,559,235.11 acres having been allowed under that Act.

The area patented during the fiscal year was 10,777,001.349 acres, an increase of 1,224,519.132 acres as compared with the fiscal year 1918. Of the above area 8,312,318.888 acres was

patented under the homestead laws, an increase of 1,819,521.072 acres, not including as homesteads 13,334.12 acres patented as soldiers' additional entries.

The total cash receipts from the sales of public lands, including fees and commissions (\$1,194,472.10), sales of reclamation townsites (\$43,863.86), and sales of lands in the Oregon & California Railroad grant (\$114,008.32), for the fiscal year 1919 were \$2,817,063.27. The total receipts from the sales of Indian land were \$1,387,781.74. Other receipts aggregated \$98,829.19. The total receipts during the fiscal year 1919 were \$4,303,674.20, a decrease of \$1,128,153.46 as compared with the fiscal year 1918.

MINERAL RESOURCES

U S. GEOLOGICAL SURVEY

GEORGE OTIS SMITH

General Activities.—The year 1919 marked the fortieth milestone for the U. S. Geological Survey. Its growth through the 40 years since its creation may be suggested by a comparison of its original appropriation of \$106,000 in 1879 with \$1,437,745 for the fiscal year 1919.

During the year the Survey continued its work along the usual lines. The areas mapped during the year aggregated 13,000 sq. miles surveyed geologically and 11,300 surveyed topographically. Stream-flow investigations were continued at 1,200 gauging stations. Nearly 30 million acres of public lands were classified. There were published 147 reports and 140 topographic maps, and more than a million books and maps were distributed to the public.

The year has naturally been one of readjustment. During the war the organization was almost wholly on a war basis; its routine activities were practically suspended. The war brought many changes in its wake, and the readjustments in the work of the Geological Survey have embraced a number of new and hitherto untrodden fields. Without enumerating further the routine achievements of the year, mention is here made of the broader outlook for present and future activities.

Topographic Mapping Programme.

—Several factors have combined to put added emphasis on the country's need of an adequate topographic map of its whole territory. With nearly 60 per cent. of the area of the United States totally unmapped and much that has been mapped in need of re-surveys, and with the Geological Survey, the largest mapping organization in the country, surveying only about 40 per cent. of the area in 40 years, the logical demand is for more speed. If these maps are to serve their full purpose in promoting national development, the whole country must be mapped within this generation or, even better, within the next decade. The estimated cost of this mapping programme is \$40,000,000, including the cost of revising the older surveys. To accomplish this work within the period desired, however, would involve more than the appropriation of this amount of money by the Federal and state governments. An organization of specially trained engineers must be built up by means of gradually increased appropriations, beginning with \$700,000 for the field season of 1919 and reaching a maximum of \$4,500,000 in 1928. It is believed that on such a scale of expenditure the field surveys could be both economically and effectively executed, and the work could be completed in 1932.

West Indian Surveys.—An increased appreciation of the value of

IX. PUBLIC RESOURCES AND PUBLIC WORKS

scientific investigation in planning the wise utilization of natural resources has led several of the West Indian republics to seek the assistance of the U. S. Department of the Interior and to make coöperative agreements whereby topographic and geologic surveys of the islands are to be made at the expense of their Governments and the technical supervision is to be assumed by the U. S. Geological Survey.

During the year a general geologic reconnaissance was made in the Dominican republic, arrangements were completed for organizing the topographic surveys, and field work begun. In Haiti plans have been perfected for similar work. In a special message to the Cuban Congress the President of Cuba urged an appropriation for the topographic and geologic survey of the island, and the coöperative assistance of the Geological Survey has been promised to the Cuban Government on this largest of the West Indian projects. A geologic reconnaissance of the Virgin Islands of the United States and a part of Porto Rico has also been made. In Porto Rico a topographic survey also is desired by the local Government.

A Power Programme.—Under the war demand for fuel conservation the hydraulic engineers of the Geological Survey served the Fuel Administration in a field study of power problems. A power survey of the United States was begun, and at the end of the war Secretary of the Interior Lane asked of Congress two appropriations, one of \$50,000 for continuing this power survey over the whole United States, and another of \$200,000 for an intensive survey of the industrial zone of the East, where power requirements are most congested. A power programme that calls for the immediate and full development of every available and feasible water power means saving in both coal and in man power. The first step is to get the facts for the country as a whole and particularly for the North Atlantic industrial district.

This "super-power" project, which engineers agree seems wholly practicable but which can be regarded as now only in the vision stage, is to pool the power supply for the whole industrial area between Boston and Wash-

ington, in which is concentrated one-fourth of the power-generating capacity of the country. Such a unified power system would tie together properly located steam-electric and hydro-electric plants (old plants that are efficient as well as new plants) in a great power main from which would flow the energy to serve a score of railroads, hundreds of public-service companies, thousands of mills and factories, and millions of homes. Electrification of our railroads would effect fuel economies of more than 50 per cent. in coal consumed, not to mention the greater efficiency of electric traction through increasing road capacity. Equally important, moreover, is the relation of cheaper power to American industry.

Commercial Geology.—The study of foreign mineral deposits and supplies by the Geological Survey has long been incidental to the continued inventory of the mineral resources of the United States. During the war, however, this study seemed of new importance, resulting in a world atlas of the production of the more important mineral commodities with other atlases showing the mineral reserves of Europe and South America and a large amount of information with regard to other continents. This work is continuing and the first part of what may be termed the *Atlas of Commercial Geology* is being published.

An "open file" of mineral information has been established in the Geological Survey. On the cards of this file are recorded in abstract the salient features in regard to foreign mineral deposit—the location and size of the productive area, the production, the estimated reserves, the grade of the ores, and the nature of the commercial or political control. Some of the largest American concerns engaged in the development of foreign mineral deposits have made extensive use of this file and have in turn contributed to it by transmitting material from their own files. The willingness to pool information that has cost many thousands of dollars may be taken as indicative of the get-together spirit of American industry, a type of public service in which it is eminently fitting for a Federal scientific bureau to coöperate.

STATE GEOLOGICAL SURVEYS

THOMAS L. WATSON

Activities and Resources.—Thirty-nine states maintained geological surveys during 1919. Of this number several were embarrassed because of lack of appropriations. During 1919 the California Mining Bureau reorganized its field division with greatly increased efficiency. The state has been divided into four districts with a resident engineer in charge of each, and branch offices have been established at Redding, Auburn, Los Angeles, and San Francisco. The chief work of the surveys continues to be economic, with special reference to mineral resources, but many are also charged with highway construction, forestation, water-power development, and natural-history study. During 1919 the state surveys had more than \$800,000 available for their work, and an additional amount of more than \$218,500 was allotted by other state and Federal bureaus working in cooperation. More than 70 scientists were employed during the year, with 85 others furnished by co-operating bureaus.

Topographic Surveys.—Topographic surveys were completed in cooperation with the U. S. Geological Survey as follows: 800 sq. miles in Michigan; 250 sq. miles in Missouri; 50 sq. miles in North Dakota; 1,540 sq. miles in Wisconsin; 900 sq. miles in Illinois. In Iowa control was secured for two 15' quadrangles, and 110 sq. miles were completely mapped. Kansas completed approximately 75 sq. miles. In Maryland 646.8 sq. miles were revised and republished. Maps of Frederick City commenced, and two sheets of Baltimore completed. In Vermont one and a fraction quadrangles were completed. Mapping of the Coastal Plain in Virginia, comprising about one-quarter of the total area of the state, was nearly completed. Active topographic mapping was under way in Kentucky and Pennsylvania.

Economic Geology.—As in previous years the expenditure of state funds for geological surveys was directed chiefly to the discovery and development of commercially valuable materials. Most of the states co-operated

with the U. S. Geological Survey in collecting and publishing statistics of mineral production for the year. The more important economic investigations during the year are briefly summarized below.

Natural Materials for the Arts and for Building Purposes.—Reports on clays were either completed or in progress in California, Georgia, Indiana, Maryland, Missouri, North Carolina, and Virginia. Study of sand and gravel deposits was in progress in Georgia, marbles in Tennessee, and limestones in North Carolina. A report on slate was published by Georgia, and one on the same subject is ready for publishing by Virginia.

Coal and Peat.—Kentucky issued reports on the coals of eight counties, and the report by Illinois on the coals of Salem and Gallatin Counties is ready for distribution. Work on coals was in progress by Maryland, Tennessee, and Virginia. The Buchanan County report was published by Virginia and the Tazewell County report is in press. A report on peat was published by Minnesota, and mapping of lignite deposits was in progress by North Dakota during the year.

Oil and Gas.—Reports on oil and gas were published by California, Illinois, Kentucky, Mississippi, and Missouri. Investigations were continued on these subjects by Colorado, Illinois, Indiana, Kansas, Missouri, Oklahoma, Oregon, Tennessee, and Texas. Special investigation of asphalt was in progress by Oklahoma. Illinois completed the survey of the old Clark County oil fields and made reconnaissance structural surveys in Adams County. California published 15 oil-field maps. The fiscal year 1918-19 closed the four-year period in California allotted for initiating and developing a definite policy for carrying on an entirely new kind of work in the conservation of petroleum and gas.

Manganese Investigations.—Reports on manganese were published by Arizona, Colorado, Georgia, and Virginia. Field studies on the manganese deposits of western Virginia were completed and the report is being prepared for publication.

Iron, Copper, Lead, and Zinc.—In Michigan economic work comprised the valuation of the iron and copper mines of the state and the examination of mineral properties for the Blue-Sky Commission. A preliminary report on the geology of east-central Minnesota, including the Cuyuna iron ore district, was published by Minnesota, and a report on the magnetite deposits of the eastern Mesabi range is in press. A report on the iron ores of western Virginia, including the Blue Ridge, is nearly completed. Field work was in progress on the brown iron ores of Georgia and on magnetite of Tennessee, and was completed on the iron ores of North Carolina. Detailed work was continued by Missouri in the Joplin field, and investigation of lead and zinc and iron deposits was carried on by Oklahoma. "Copper Resources of the Sierra Nevada Foothills Belt" is in preparation by California.

Detailed Areal Surveys.—Mapping of Jerome and Chiricahua quadrangles was completed by Arizona, and considerable work was accomplished on other quadrangles. Colorado mapped 24.9 sq. miles in the eastern part of the state, about 180 sq. miles in detail, and 216 sq. miles of reconnaissance in Routt County. Field work on the metamorphics of the Guilford quadrangle was in progress by Connecticut. Illinois completed the mapping of five quadrangles in different parts of the state. A revised geologic map of the state is in preparation by Kansas. Detailed surveys of five counties were completed by Kentucky. In Maryland 700 sq. miles were completed. Data for a new state map of Ohio were collected, and the map is in the hands of the engraver. Detailed areal surveys were in progress in four counties in Oklahoma and in the Cretaceous of western Tennessee. Similar surveys in the Pennsylvanian coals of southwest Virginia were continued in four counties, with areal mapping of the Pittsylvania emery deposits, and the Albemarle-Nelson Counties soapstone area was completed, also the Oriskany-Helderberg formations in western Virginia with reference to manganese ores.

Stratigraphic and Palæontologic Geology.—In Illinois studies of the

Pleistocene of the state were begun. Indiana continued work on the stratigraphy of the Mississippian. Work was either in progress or completed by Iowa on the Mississippian and Devonian strata, on the Des Moines and Missouri stages, and on the Pleistocene. A fairly complete survey of the oil fields was made by Kentucky, a coöperative survey of the Mississippian rocks was in progress, and studies of fossil collections from the eastern Kentucky coal measures was begun. Maryland published a report on Cambrian and Ordovician formations and continued work on the Carboniferous floras and faunas. A revised report on the coals of Maryland is in press. Stratigraphic and palæontologic studies were continued by Michigan on the Niagaran. Mississippi revised and reworked certain Eocene areas in order to complete the Coastal Plain stratigraphy of the state. Stratigraphic work was in progress by Missouri on the Ordovician of the Ozarks and on the Devonian of the east-central part of the state. Investigation of greensand marl deposits as a source of potash was conducted by New Jersey. Ohio completed a report on the Permian and conducted field work on the Ordovician in the southwest part of the state. Special stratigraphic studies were carried on in southwestern, central-eastern, and northwestern Oklahoma. Areal, structural, and stratigraphic work was in progress by South Dakota in Jackson County. Texas published a report on the Upper Comanchean in the northern part of the state. Stratigraphic work was continued by Wisconsin with a report in preparation.

Miscellaneous Investigations.—Alabama has the following reports ready for publishing: "An Annotated List of the Reptiles and Batrachians of Alabama," "An Annotated List of the Avery Collection of Bird Skins in the Museum of the Geological Survey," a geological map and report on Clay County, and a report of the resources of the Eocene-Tertiary beds. Arizona has ready for publication bulletins descriptive of all publications of the Federal Survey bearing upon Arizona vanadium and the geology of the state; also it has in press a bulletin on barite, and one containing

papers on the geology and mineral resources of several districts. California has in press reports on mines and mineral resources of nine counties, commercial minerals of California, platinum, magnesite, tungsten, molybdenum, vanadium, and mineral production for 1918, with special studies under way on a number of other subjects. Reports on molybdenum and the Twin Lakes district were published by Colorado. Florida issued the usual annual report comprising economic, palæontologic, and soil subjects. Illinois completed a report on fluorspar deposits of Hardin County, and continued experiments on a commercial scale covering adaptation of gas plants for the use of Illinois coal for gas making in retorts and in water-gas machines and demonstration work for the control of water in the old oil fields of the state. A base map of Illinois on a scale of eight miles to the inch and detailed topographic maps of McDonough and Randolph counties were published. Iowa published reports on "Rodents of Iowa" and "Raptorial Birds of Iowa." Early in the year Michigan published "Agaricaceae of Michigan," and "Michigan Lakes" is in press. The North Carolina Survey issued a report on "Birds of North Carolina," and completed a manuscript report on the mining industry of the state for the years 1913-18. A report on Muskingum County was published by Ohio, and a bulletin on the Camp Sherman area is ready for sending to press. Investigation of metal mining prospects was in progress by Oregon. South Dakota completed the geological map of the state, and a manuscript is nearing completion on the "Birds of South Dakota" and the Arikara Indians. Wisconsin has the following reports in preparation: "Geography and History of Wisconsin," "Geography of the Milwaukee-Kenosha District," "Geography of the Sparta-Wilton Quadrangles," "The Climate of Wisconsin," "Lake Temperatures," "Chemistry of the Plankton," "The Plankton Algae of Wisconsin," "The Rotifers of Wisconsin." Field work has been completed by Virginia on the following subjects and the reports are in an advanced stage of preparation: emery, salt and gypsum, soap-

stone, physiography of a part of the folded Appalachians, and geology and coal resources of Dickenson County.

Surface and Underground Waters.

—In Connecticut field work was in progress on the effect of salt water on wells along the shore from the town of Clinton to the Housatonic River. Work was continued in Iowa on underground and surface waters. A report on surface and underground waters was published by Maryland. In Michigan studies on water resources were made in connection with water supplies for cities and villages seeking new or additional supplies or the solution of drainage and sewage problems. Additional data were collected by Mississippi for a report on underground waters. Investigations of surface and underground waters were in progress in North Dakota, New Jersey, Oklahoma, and Texas.

Soil, Forest, and Highway Investigations.—Studies of sand, gravel, and rock for use in highway construction were made by Illinois, and about 26 counties (about one-fifth of the state) were covered. Investigation of road material by the state was conducted by Kansas. Three quarterly issues of the pamphlet series, "Mineral and Forest Resources of Kentucky," were published by the Survey. Soil surveys were conducted by Maryland in Carroll and Frederick counties, and soil maps of Baltimore and Washington counties were published. Studies of soils and wood lots were continued by Michigan. Mississippi completed a detailed soil survey of Choctaw County and of a part of Smith and Covington counties, and a bulletin on road-making materials is ready for publishing. Minnesota published reports on surface formations and agricultural conditions of the northeastern and southern parts of the state. Areal soil surveys were continued by Oklahoma, New Jersey, and Wisconsin, and several reports on soils were published by the Wisconsin Survey. A report on Wayne County is in preparation by Ohio. Oregon did considerable work in cooperation with the State Highway Department on quality and distribution of road materials. In Pennsylvania field studies were made by the State Survey for the Highway Department. Soil maps of

Henry, Maury, and Meigs counties were in progress in Tennessee, which was also engaged in reclaiming gullied lands in different parts of the state. Texas published a report on materials for road construction, etc.

Educational.—In Indiana work was in progress on a *Handbook of Indiana Geology*. A bulletin on geology,

geography, soils, and mineral resources was published by Mississippi. Reports were published by South Dakota on the geography and bibliography of the state, and by Virginia on the country about Camp Lee. Work on physiographic and educational subjects was continued by Wisconsin and a group of reports published.

RECLAMATION

F. G. HARDEN

The Reclamation Service.—The U. S. Reclamation Service was authorized by the Sundry Civil Appropriation Act approved July 19, 1919, to spend \$7,325,000 and certain unexpended balances of the sums appropriated in 1918 upon its several projects during the year ending June 30, 1920. The total costs for construction, operation, and maintenance for the fiscal year 1920 are estimated at approximately \$6,425,000.

The total net cost to the Service for construction work up to June 30, 1919, was \$123,071,738.46, and the total net operation and maintenance costs, \$7,929,791.26. During the year ending June 30, 1919, the total cash collections amounted to \$3,917,587.16, making the total since the passage of the Reclamation Act \$28,401,691.60. The chief items during 1919 were: construction charges, \$1,478,050.03; operation and maintenance, \$1,154,671.16; temporary water rentals, \$527,261.73; power and light, \$143,069.95; and miscellaneous sales and services, \$598,193.01; making the totals for these items: construction charges, \$7,478,097.81; operation and maintenance, \$4,931,530.96; temporary water rentals, \$5,368,903.05; power and light \$1,870,181.08; and miscellaneous sales and services, \$8,252,824.94.

The Service during the year ending June 30, 1919, constructed 396 miles of canals, 179 miles of drains, and 7,937 canal structures, and laid 168,076 ft. of pipe. Over 14,000,000 cu. yd. of excavating was done, nearly 244,000 cu. yd. of material was placed in dams, and nearly 47,000 cu. yd. in dikes and levees. Over 11,540 h.p. of steam and water power was developed. The following table gives the

chief construction items of the service to June 30, 1919:

Estimated area in projects when completed, acres	3,212,092
Estimated number of farms when completed	67,447
Area susceptible of irrigation from completed works on June 30, 1919, acres.	1,780,021
Capacity of reservoirs, acre-ft.	9,430,910
Length of canals with capacity over 50 sec.-ft., miles.	3,027
Length of canals with capacity under 50 sec.-ft., miles	7,807
Length of waste ditches and drains, miles	1,480
Tunnels, ft.	143,847
Dams: Masonry, cu. yd.	2,087,991
Earth, cu. yd.	10,220,671
Rock-fill and crib, cu. yd.	1,203,386
Dikes and levees: Length, ft.	513,989
Volume, cu. yd.	4,517,664
Canal structures: Wood	64,423
Concrete	32,722
Pipes: Concrete, metal, and wood, ft.	1,371,140
Tile, ft.	1,270,375
Flumes, ft.	636,299
Canals lined, miles	311.67
Power developed, h.p.	59,633
Excavation: Earth, cu. yd.	154,473,487
Indurated material, cu. yd.	9,913,065
Rock, cu. yd.	8,409,722
Riprap, cu. yd.	1,892,728
Paving, sq. yd.	819,408
Concrete, cu. yd.	3,023,446
Cement, bbl.	2,971,330

During the crop year 1918 the Service was prepared to furnish water to 1,732,374 acres in its own projects, besides a considerable area under private canals under agreements. Of the area on its own projects 1,406,441 acres were under cultivation, 1,141,516 acres were irrigated, and 1,051,193 acres were cropped. The total value of the crops reported was over \$66,825,000, or an average of \$63.60 per acre. The acreages of the principal crops and the average values per acre of the crops are given in the following table:

IRRIGATION PROJECTS OF THE U. S. RECLAMATION SERVICE

¹ Includes some unirrigated lands. ² Together with unexpended balance of 1919 appropriation.

IX. PUBLIC RESOURCES AND PUBLIC WORKS

Crop	Acreage	Average Value per Acre
Barley	29,698	\$36.20
Corn	34,944	48.50
Oats	46,951	25.00
Wheat	166,138	43.10
Alfalfa seed	9,231	54.50
Clover seed	8,884	71.00
Grain sorghum	27,326	64.40
Alfalfa hay	419,612	54.10
Beans	10,711	54.30
Irish potatoes	28,332	133.00
Fruits and nuts...	37,979	140.00
Sugar beets	27,133	101.00
Cotton	86,470	141.00

During the year ending June 30, 1919, over 158 miles of drains were constructed, involving over 5,813,000 cu. yd. of excavation and costing approximately \$1,065,600. Up to that date the Service had constructed a total of over 921 miles of drains, protecting an area estimated as 351,920 acres, of which 188,500 acres was already damaged by seepage.

Of the area included in the projects under cultivation, 999,979 acres was farmed by the owners and 406,462 acres by tenants.

U. S. Department of Agriculture.—The amounts carried by the Agricultural Appropriation Act approved July 24, 1919, for investigations along the lines of drainage and irrigation were as follows: investigations in connection with western irrigation agriculture, \$73,580; investigations pertaining to farm irrigation, \$82,440; investigation pertaining to farm drainage of swamp and other wet lands, \$73,760; and demonstrations on reclamation projects, \$48,600.

Irrigation Legislation and Judicial Decisions.—The legislatures of all the states in which irrigation is extensively practiced were in session during the winter of 1918-19 and all passed more or less legislation, affecting irrigation. The more important enactments are detailed below. A water code modelled after the Oregon Water Code was enacted in Arizona. This code provides for the office of State Water Commissioner, the appropriation, administration, and distribution of public waters, and the adjudication of existing water rights, etc. The act also carried an appropriation of \$10,000 to be used during 1919-20 in gathering data for the adjudication of the Gila River. The sum of \$100,000

was also appropriated to assist the Reclamation Service in making investigation to locate and develop feasible projects affecting lands in the state. An appropriation of \$15,000 was also made for sinking an experimental artesian well in the San Simon Valley for irrigation purposes.

In California the Irrigation Act of 1915 and its amendments was repealed, and a new Irrigation Act covering in general the same ground was enacted. A considerable number of amendments were added to the irrigation-district law. Idaho created a Department of Reclamation with a commissioner of reclamation and a director of water resources to exercise the powers and duties formerly vested in the state engineer and the state Board of Land Commissioners. Several amendments were made to the irrigation-district law, the most important being new sections covering the sale of lands for taxes, the method of redemption, etc.

Kansas created a Division of Irrigation with a commissioner of irrigation in the State Board of Agriculture and \$23,000 was appropriated to enable this officer to gather data regarding existing irrigation plants, irrigation methods, etc., and to advise prospective builders of such plants. The State Waterright Commission was given \$10,000 to use in making a systematic general plan for the complete development of the water resources of the state. Securities issued to finance irrigation works were made subject to the blue-sky law of the state.

In Nebraska lands that are to be irrigated in any year must be listed with the state engineer by appropriations rather than according to headgates as heretofore. An irrigation-district law was enacted in Nevada. In New Mexico the existing irrigation-district law was repealed and two new irrigation-district laws enacted, one being drawn especially for districts formed for cooperating with the Reclamation Service and other Federal agencies. For the next two years \$15,000 a year was provided for the measurement of streams to determine the location of reservoirs for irrigation purposes and to investigate the feasibility of supplying reservoirs with

water from artesian or pumped wells.

Oklahoma appropriated \$6,000 for irrigation investigations in coöperation with the U. S. Department of Agriculture. In Oregon a commission was created to make investigations and certify irrigation and drainage-district bonds meeting the state requirements; such bonds when certified are made legal investments for trust funds, banks, and insurance companies. In Utah the existing laws covering appropriations of water and administration, adjudication, etc., of water rights were repealed and a new water code enacted. The existing irrigation-district law was repealed and a new law enacted. An appropriation of \$20,000 was made for experiments in sinking wells for irrigation purposes. A general revision was made in Washington of the existing irrigation-district law and \$100,000 was appropriated for making a survey of the Columbia River irrigation project embracing 2,000,000 acres. In Wyoming a general revision was made of both the irrigation- and drainage-district laws. Montana at a special session of the legislature in August amended its irrigation district law and created an Irrigation Commission to examine the feasibility of and assist in the organization and financing of irrigation districts. In both Montana and Colorado a committee of the legislature was appointed to investigate and report at the next session what irrigation legislation is needed.

The Supreme Court of Texas in *McKnight v. Pecos & Toyah Lake Irrigation Co.* (207 S. W. 599) declared unconstitutional that part of the Board of Water Engineers law (Acts of 35th Legislature, Ch. 88) which conferred power on the Board to determine and establish the relative rights of claimants. The decision held that such powers were judicial powers. The Court noted the fact that the Texas law was modeled after the laws of Wyoming and Nebraska but that it could not follow the Supreme Courts of those states in holding that such a board was a quasi-judicial body.

Drainage.—The increase in the value of land has resulted in an increased interest in drainage, notwithstanding the high costs of materials and labor. In the irrigated sections the need of

drainage is becoming more clearly recognized: for example, investigations of the Reclamation Service have shown that 70 per cent. of the land on its Rio Grande Project needs drainage. An investigation conducted by the State Board of Health of California in an irrigation district containing 32,000 acres and 1,300 persons showed that in 1918 the average cost of medicines, medical services, and the loss of labor due to malaria was \$7.66 per person.

Drainage Legislation and Judicial Decisions.—Considerable drainage legislation was enacted during the year, the more important of which is here outlined.

Georgia, Indiana, Iowa, Kansas, Nevada, New Mexico, North Carolina, and Washington made changes of more or less importance in their drainage-district laws. California enacted a new drainage-district law for the drainage of wet, swamped, or overflowed lands. Under this law the construction and operation of the works and the financing of the district are put in the hands of county officials. Idaho made a general revision of the existing drainage-district law. Indiana created a Department of Conservation, which among other powers is charged with investigating, compiling, and disseminating information and making recommendations concerning the natural resources of the state and their conservation by drainage, reclamation, and flood control. Kentucky enacted a new drainage-district law for the prevention of overflow of lands, towns, etc. Extensive amendments were also made to the district law passed in 1915.

Massachusetts created a State Drainage Board to make investigations, surveys, etc. and to form drainage districts. Minnesota created a Department of Drainage and Waters having the powers of the former State Drainage Commission and also power to make investigations as to the works necessary to secure drainage outlets in all stream basins, to measure streams, to regulate drainage engineers, to survey drainage districts and establish their boundaries, to ascertain run-off from water sheds, and to determine the carrying capacity of ditches and tile lines of different

sizes. In North Dakota a Flood Control Commission was created to make surveys and provide plans for flood control on streams both within the state and on the boundary. The county boards of commissioners were empowered to appoint boards of flood irrigation to form and manage drainage districts and to issue county bonds for the use of such districts. Oregon drainage districts were given power to build irrigation works wherever it is found necessary or beneficial to do so. In Utah the existing drainage-district law was repealed and a new law enacted.

The U. S. Supreme Court in *Orr v. Allen* (248 U. S. 35) upheld the constitutionality of the Ohio conservancy law (A. Y. B., 1914, p. 278). The Florida drainage-district law was held unconstitutional by the Supreme Court of that state in *Redman v. Kyle* (80 Southern 300) on the grounds that the imposing of a preliminary tax by the supervisors violated the due-process-of-law clause of the constitution of the state. The Supreme Court of Virginia in *Strawberry Hill Land Corporation v. Starbuck* (97 S. E. 362) held the drainage-district law of the state unconstitutional on several different grounds. The Supreme Court of Minnesota in *State ex rel. Skordahl v. Flaherty* (167 N. W. 122) held that the fact that the directors of a drainage district are to be appointed by the courts does not render the law constitutional on the grounds that legislative or administrative power was being delegated to the courts. The Idaho Supreme Court, after reaffirming *Burt v. Farmers' Coöperative Irrigation Co.* (168 Pac. 1078) in *Drainage District No. 2 of Canyon County v. Extension Ditch Co.* (182 Pac. 847), defined the meaning of the terms "high lands" and "low lands" as used in the statute and laid down the rules by which benefits are to be assessed against each. High lands are held to include all lands and canals that contribute to the waterlogging of the low lands. Where there are both high and low lands in the district, the decision relieves the low lands from any assessment for benefits if no part of such benefits arises from the enhancement of value of the lands in their natural condition or by changing con-

ditions other than the damage caused by the seepage of water from the high lands.

Soldiers' Land Settlement.—Twenty or more bills have been introduced in Congress with a view to providing lands and homes for returning soldiers, sailors and marines, but as yet none has passed. Probably the chief of these bills is the "National Soldier Settlement Act" bill (H. R. 487), which is generally taken to embody the plan of Secretary of the Interior Lane (A. Y. B., 1918, p. 316). This bill provides for a fund of \$500,000,000 for the purpose of furnishing employment and rural homes for those who served with the American forces and the American citizens who served with Allies of the United States during the European War. It authorizes the Secretary of the Interior to acquire, reclaim, develop, and improve lands and to dispose of them to soldiers, sailors, etc., as farms or farm workers' tracts at such prices that the lands on each project will repay the total expenditures on the project. Purchasers are to be required to make a first payment equal to five per cent. of the sale price, and the balance is to be paid in amortizing payments extending over not to exceeding 40 years and bearing four per cent. interest. Three-quarters of the cost or value of improvements, not exceeding \$1,500, can be loaned settlers for making necessary improvements, and up to \$1,200 for purchasing live stock and equipment, the former to be repaid in amortizing payments extending over not to exceed 10 years and the latter within five years, both to bear interest at four per cent. In case any state furnishes 25 per cent. of the necessary funds for the works within its boundaries, it may be given supervision of the selecting, preparing, and disposing of the lands. (See also *Public Lands, supra.*)

Arizona, Colorado, Idaho, Montana, Nevada, South Dakota, Utah, Washington, and Wyoming as well as several eastern and southern states, have passed soldier settlement acts. Most of these state laws were drafted with a view to coöperating with the Federal Government under the law outlined above. California amended its State Land Settlement Act of 1917 more es-

pecially to provide for soldiers, sailors, and marines. The new law carries \$1,000,000 for the immediate use of the Land Settlement Board and provides for submitting the question of a \$10,000,000 bond issue to the people in November, 1920. The legislature of Oregon submitted to the people the question of a constitutional amend-

ment providing for a bond issue of \$5,000,000, of which \$2,000,000 was to be used for land-settlement purposes, but this amendment was defeated by popular vote. The other states provided sums of from \$50,000 to \$1,000,000 for carrying out their acts. (See also XVI, *Agricultural Legislation*.)

HIGHWAYS

ANDREW P. ANDERSON

Revival of Activity.—The year 1919 was marked by an unusual activity in practically all fields of highway engineering. During the war nearly all highway work had been curtailed in every possible way, often to the great inconvenience of the public. Consequently, at the close of hostilities road activities soon began to claim their full share of public attention. In practically every state extensive and ambitious plans were immediately mapped out, and definite action to secure their approval was begun. (See also XX, *Civil Engineering*.)

State Road Funds.—The first and most striking development in this movement related to the provision of adequate funds. Between Nov. 1, 1918, and Dec. 31, 1919, state highway bonds amounting to a grand total of \$234,800,000 were voted as follows: Illinois, \$60,000,000; Pennsylvania, \$50,000,000; Michigan, \$50,000,000; California, \$40,000,000; Oregon, \$12,500,000; Maine, \$10,000,000; South Dakota, \$4,500,000; Utah, \$4,000,000; Wyoming, \$2,800,000; and Nevada, \$1,000,000. Other states have made definite provision for submitting to a vote of the electors between Dec. 31, 1919, and Dec. 31, 1920, the question of issuing an additional total of \$254,000,000 as follows: Minnesota, \$75,000,000; Texas, \$75,000,000; Missouri, \$60,000,000; West Virginia, \$40,000,000; Washington, \$30,000,000; Alabama, \$25,000,000; Montana, \$15,000,000; Colorado, \$5,000,000; Idaho, \$2,000,000; and New Mexico, \$2,000,000 (see also V, *Amendments to State Constitutions*.)

In Oklahoma on May 6, 1919, the question of issuing \$50,000 of bonds, and in Texas on Nov. 4, 1919, the question of issuing \$75,000,000 of bonds for the construction of a system

of permanent state highways were defeated by the electors. These defeats, however, were due more to defects in the proposed legislation than to any opposition on the part of the electors to providing adequate funds for better roads. In New York the question of submitting to the voters a proposition for issuing \$20,000,000 of state highway bonds was vetoed by the Governor, as was also a measure for authorizing \$20,000,000 in Arizona.

Federal Aid.—The action taken by the Federal Government was also especially notable. The Post Office Appropriation Act of Feb. 28, 1919, carried an amendment to the original Federal-Aid Road Act of July 11, 1916 (*A. Y. B.*, 1916, p. 284), revising its terms and providing an additional appropriation of \$200,000,000 for post roads and \$9,000,000 for forest roads. Of the post-road funds \$50,000,000 was made immediately available and \$75,000,000 was made available for each of the fiscal years 1920 and 1921, while \$3,000,000 of the funds for forest roads were made available for each of the fiscal years 1919, 1920, and 1921. This amendment also provided for the transfer to the Secretary of Agriculture of all available war material, equipment, and supplies suitable for use in the improvement of highways which were not needed by the War Department. All equipment and material so transferred was to be distributed on a value basis, the same as provided by the Federal-Aid Road Act of July 11, 1916, among the highway departments of the several states to be used on roads constructed in whole or in part by Federal aid. Under this provision trucks, road equipment, and road materials having, when new, a value of over \$100,000,000, had been distributed on Nov. 1, 1919.

IX. PUBLIC RESOURCES AND PUBLIC WORKS

STATE HIGHWAY EXPENDITURES, 1918

State	Source of Funds		Distribution of Expenditure				Local Expenditures, 1918, not under State Highway Department (approximate)
	Federal	State	Local	Construction		Maintenance, Roads and Bridges	
				Roads	Bridges		
Alabama	\$133,380	\$103,285	\$134,547	\$314,163	\$27,230		\$2,000,000
Arizona 1	31,947	975,801	10,000	608,677	191,093	\$82,255	1,000,000
Arkansas	41,778	221,831		229,997	16,304		1,700,000
California	26,399	6,941,192	29,129	5,237,420	(2)	894,921	14,649,868
Colorado	250,000	800,000	400,000	410,000	120,000	800,000	1,850,000
Connecticut	5,301	3,172,706	396,600	1,640,707	295,927	1,256,565	1,444,212
Delaware	5,268	429,734	208,373	606,606	8,050	2,153	300,000
Florida	9,972	179,807	328,722	389,111	3,664	80,092	5,245,703
Georgia	21,158	15,000	55,898	72,368	800		5,700,000
Idaho	48,936	491,342	479,642	651,033	133,796	115,540	2,500,000
Illinois		860,910	1,216,312	1,787,357	59,669	65,557	8,106,129
Indiana							13,000,000
Iowa	75,853	113,488	14,360,280	2,931,526	4,972,168	4,158,254	
Kansas	8,083	25,000	1,922,766	131,250	1,600,600		3,061,267
Kentucky		1,000,000	580,000	1,100,000	300,000	60,000	1,800,000
Louisiana 1		182,295	358,681	430,708	35,984	9,841	3,000,000
Maine	81,611	1,570,493	707,309	1,333,776	263,500	613,805	1,500,000
Maryland	4,767	2,681,141	64,225	1,064,674	105,875	1,368,860	3,000,000
Massachusetts	33,440	3,522,493	568,369	1,389,153	3,150	2,365,794	5,000,000
Michigan 1		1,704,359	3,968,794	5,125,224	187,751	247,178	5,000,000
Minnesota	224,357	1,870,336	3,300,216	3,146,867	942,119	1,000,867	5,172,801
Mississippi		10,000					750,000
Missouri		704,400	450,000	900,000		181,000	6,000,000
Montana		133,547		36,987	27,767		9,791,402
Nebraska	41,866	201,202	112,759	61,103	193,448	32,072	3,500,000
Nevada		75,327				16,467	399,442
New Hampshire	20,530	651,593	332,561	334,985		593,549	1,000,000
New Jersey 4		1,848,932	1,860,000	606,587		2,800,922	3,000,000
New Mexico		527,071	487,120	487,261	96,912	249,284	300,000
New York 1		9,432,679	2,282,452	5,635,027		4,537,709	9,000,000
North Carolina 1		20,000					4,000,000
North Dakota..	71,000	83,000	54,000	115,000	28,000	600	3,000,000
Ohio	169,075	4,670,270	3,660,487	6,272,840	(2)	1,791,244	6,000,000
Oklahoma		1,046,892	1,577,610	998,865	527,422	670,726	507,029
Oregon		2,120,551	709,724	1,948,936	617,388		4,000,000
Pennsylvania	137,437	58,041,833	574,605	1,694,011	279,359	5,473,193	6,000,000
Rhode Island..	34,997	745,673			109,696	600,720	355,000
South Carolina.	50,754	49,238	40,911	113,921	2,746		1,535,334
South Dakota		30,473	1,236	6,831			3,000,000
Tennessee		403,000	75,000	38,000		400,000	2,500,000
Texas	95,510	295,567	1,934,648	901,391		1,306,336	9,000,000
Utah		1,546,812	60,417	845,929	85,961	231,341	1,163,231
Vermont	5,000	778,075	223,000	494,000	55,000	445,000	600,000
Virginia	24,516	861,030	1,322,804	1,251,561	138,945	695,537	1,500,000
Washington	128,439	2,922,436	205,430	2,520,574	152,576	559,768	4,000,000
West Virginia.	42,782	171,581	342,090	444,659	72,838	17,758	4,500,000
Wisconsin	225,319	2,051,455	3,307,401	3,175,126	993,966	1,250,000	3,700,000
Wyoming	59,053	67,582	121,071	163,198	17,773		681,507
Total and average	\$2,108,538	\$66,351,478	\$48,825,251	\$57,647,409	\$12,667,477	\$34,974,908	\$168,812,925

1 Data for 1917. Data for 1918 not available. 2 Included under roads. 3 Does not include San Francisco County. 4 Approximate. 5 Does not include \$943,765 state funds distributed to townships.

Local Road Activities.—The movement to provide road funds was not limited to the Federal and state governments, but was equally marked among the minor political divisions, such as counties, districts, and townships. The total of their bonds and increased levies probably exceeds the total provided by the several states. Thus, in Texas the several counties and districts have voted a total of over \$80,000,000. Some of these individual county issues in the several states are especially significant. We

IX. PUBLIC RESOURCES AND PUBLIC WORKS

ROAD MILEAGE, 1918

State	Work done in 1918 under State Supervision			Miles of Rural Public Roads		
	State and State-aid Roads Built	Roads Maintained with State Aid	Number of Bridges Built by State or State Aid	Total All Surfaced Roads in State (approximate)	Total All Public Rural Roads in State	Percentage of Surfaced Roads in State
Alabama	1109	.....	2	6,125	55,446	11.0
Arizona	52	436	10	475	12,075	3.9
Arkansas	(2)	.....	(2)	2,000	50,743	4.0
California	3260	2,521	11	13,000	61,039	21.2
Colorado	4100	7,000	15	2,550	39,780	6.4
Connecticut	555	1,481	13	3,200	14,061	22.6
Delaware	10	20	1	310	3,674	8.5
Florida	677	362	1	3,900	17,995	21.6
Georgia	17	.....	2	13,200	80,669	16.4
Idaho	790	490	12	850	24,396	3.5
Illinois	8232	736	80	12,800	95,647	13.4
Indiana .....	.....	.....	.....	31,000	73,347	42.5
Iowa	92,969	104,082	1010,237	1,500	104,074	1.4
Kansas	19	.....	(2)	1,550	111,052	1.4
Kentucky	11214	65	150	13,900	57,916	24.0
Louisiana	(2)	(2)	(2)	2,700	24,563	11.0
Maine	12160	4,235	19	3,525	23,537	14.9
Maryland	192	1,433	5	3,100	16,459	18.8
Massachusetts	72	132,000	1	9,100	18,681	48.8
Michigan	150	.....	.....	10,600	74,190	14.3
Minnesota	141,643	12,089	10640	7,000	93,517	7.5
Mississippi .....	.....	.....	.....	2,700	45,779	5.9
Missouri	15300	1611,400	.....	7,550	96,041	7.8
Montana	1783	.....	9	900	39,204	2.3
Nebraska	1841	.....	6	1,450	80,272	1.8
Nevada .....	.....	260	.....	340	12,182	2.8
New Hampshire	1952	1,479	.....	2,000	14,020	14.5
New Jersey	16	2,450	.....	6,050	14,817	41.0
New Mexico	201,268	6,035	163	620	2143,091	1.4
New York	(2)	(2)	(2)	18,400	79,398	23.2
North Carolina	(2)	(2)	(2)	6,850	50,758	13.5
North Dakota	22110	65	.....	1,160	68,796	1.8
Ohio	23342	2,485	7	31,800	86,354	36.8
Oklahoma	24927	2,592	614	700	107,916	.7
Oregon	25213	.....	60	5,000	36,819	14.1
Pennsylvania	44	8,495	167	10,600	91,556	11.6
Rhode Island	2615	325	12	750	2,170	34.5
South Carolina	11	.....	1	3,800	42,226	9.0
South Dakota	(2)	.....	.....	800	96,306	.8
Tennessee	12	3,800	.....	8,880	46,050	19.2
Texas	200	13,000	.....	12,300	128,960	9.6
Utah	109	367	.....	1,650	8,810	18.6
Vermont	110	4,300	.....	2,300	14,249	16.3
Virginia	27358	3,054	39	6,150	53,388	11.7
Washington	28275	1,411	6	6,300	42,428	14.9
West Virginia	29135	88	12	1,600	32,024	5.0
Wisconsin	20735	5,000	670	15,500	77,280	20.1
Wyoming	31167	.....	8	600	14,797	4.1
Total and average.	11,944	203,556	12,973	299,135	2,478,552	12.0

1 Includes 12 miles of earth roads. 2 Data not available. 3 Includes 87 miles of earth roads. 4 Includes 64 miles of earth roads. 5 Includes 34 miles of reconstruction. 6 Includes 5 miles of earth roads. 7 Includes 75 miles of earth roads. 8 Includes 64 miles of earth roads. 9 Includes 2,549 miles of earth roads. 10 Includes culverts. 11 Includes 45 miles of earth roads. 12 Includes 5 miles of earth roads. 13 Includes about 792 miles of town roads. 14 Includes 1,207 miles of earth roads. 15 Includes 245 miles of earth roads; does not include 200 miles partially completed. 16 Dragging only. 17 Includes 32 miles of earth roads. 18 Includes 36 miles of earth roads. 19 Includes 9 miles of reconstruction. 20 Includes 1,063 miles of earth roads. 21 As reported by state highway engineer May, 1919. 22 Includes 100 miles of earth roads. 23 Includes 22 miles of earth roads. 24 Includes 716 miles of earth roads. 25 Includes 100 miles of earth roads. 26 All reconstruction. 27 Includes 44 miles of earth roads and 52 miles of reconstruction. 28 Includes 140 miles of earth roads. 29 Includes 111 miles of earth roads. 30 Includes 373 miles of earth roads. 31 Includes 144 miles of earth roads.

IX. PUBLIC RESOURCES AND PUBLIC WORKS

see amounts which a few years ago would have seemed large for a state. Some of the larger county bond issues are as follows: St. Louis County, Minn., \$7,500,000; Dallas County, Tex., \$6,500,000; Cook County, Ill., \$5,000,000; Fresno County, Cal., \$4,800,000; Eastland County, Tex., \$4,500,000; Maricopa County, Ariz., \$4,000,000.

State Legislation.—During the year 41 states passed important highway legislation, directed mainly toward strengthening the powers of the state highway departments, securing additional funds, and placing road management in general on a more efficient and rational basis. Idaho, Nebraska, and Massachusetts joined in the new movement for the centralization of state departments in which the state highway work becomes a division or bureau in a Department of Public Works. Georgia, Illinois, North Carolina, South Dakota, Tennessee, and Wyoming entirely rewrote their highway legislation. Colorado, New Mexico, and Oregon uncovered an additional source of road revenue by placing a tax of one cent per gallon on the sale of gasoline. No state legislature that assembled during the year adjourned without having given serious attention to the various phases of the road question.

Construction and Maintenance.—The amount of road construction and maintenance under way during the season has been at least 50 per cent. above the normal of the average pre-war years. Although no striking innovations in either methods or materials have been developed, the pre-war movement for better and safer highways has steadily gained headway. In every state efforts have been made toward meeting in some sub-

stantial way the demands of fast and heavy traffic for better types of construction, wider pavements, easy turns, lighter grades, the protection of high embankments, and the abolition of dangerous grade crossings.

In road construction the most important development has been the increase in the amount of concrete pavement. Of the new methods for this type of construction proposed during the war the use of the dryer mix and the mechanical tamper has become quite general. Wages and prices of materials have continued at about war-time levels throughout the season. In some sections difficulties have been encountered in securing sufficient labor and an adequate supply of materials. Most of the delay, however, has been due to the failure to secure sufficient cars to carry the amount of road materials necessary for the construction programme, which was at least 50 per cent. above normal. During the early part of the season, before the engineering units in the military service were dismissed, the shortage of skilled and experienced highway engineers was rather acute. Later the supply was about equal to the demand. (See also XX, *Civil Engineering*.)

Road Expenditures and Mileages.

—The accompanying tables compiled from *Public Roads* (ii, No. 15, U. S. Department of Agriculture, Bureau of Public Roads) show more fully than is possible in any other way the road work and expenditures by the several states through the respective state highway departments and local subdivisions during the year 1918. The table of state highway expenditures does not include the value of the prison and statute labor of the several states, which is estimated at a total of approximately \$13,000,000.

WATERWAYS AND HARBORS

ROY S. MACELWEE

Tendencies in Port Development.—Port development has many features that are more important than the dimensions of piers and their cost. A marked change in the attitude of public officials and the business public toward port development is to be observed. Concerted efforts by groups, not only groups of merchants, but

also of communities, to develop ports along scientific lines and as part of the economic structure of the country is everywhere evidenced. To illustrate this the Gulf ports are working together, not against one another. The Mississippi Valley Waterways Association is working for the development of transportation and ports along the

entire water system. In the Great Lakes, particularly in the Lake Michigan and Lake Superior region, there is a concerted effort extending into the Rocky Mountain states in furtherance of the project for a St. Lawrence River sufficiently deep to permit ocean-going vessels to enter the Lakes. At present the controlling depth of the Great Lakes is 21 ft.; with the completed Welland Canal with a depth of 30 ft. over the sills and a St. Lawrence hydro-electric navigation project arousing interest, it may be possible to make of the Great Lakes a Mediterranean and a Black Sea. Various communities are interested in the project for a canal between the Delaware River and New York across New Jersey. Communities not in the immediate neighborhood of the canal recognize the benefits of water transportation and are encouraging the movement for the construction of such a canal. The same may be said of the Pittsburgh-Ashtabula project and the proposed barge canal between Lake Erie and the Ohio River.

Mechanical Handling of Freight.

—Strikes in ports throughout the world have been frequent during the year. The most important have been two strikes at New York (see also XV, *Labor*) and the strikes at Buenos Aires, Liverpool, and London, but there have been many others. These port-worker's strikes have been a great hindrance to commerce. The labor situation has also brought forcibly to the attention of all concerned the necessity for much dependence upon mechanical means in the loading and discharging of ships. Foremost in the movement for mechanical freight-handling and transfer equipment has been the Society of Terminal Engineers in New York; the Material-Handling Machinery Manufacturers' Association, also located at New York, has taken an active interest in the development of port labor-saving machinery of all kinds.

Pier Design.—By far the most important development in waterfront construction of the last two years has been the general concession that the warehouses must be physically coordinated with the wharf. With the increase in the size of ships the congestion on piers has become unbearable.

The port designer has been faced with the problem of extending the piers in width almost indefinitely or of providing means of moving freight immediately from pier to warehouse. The invention of the automatic micro-leveling device for elevators in connection with large elevator platforms and the increased reliability of electric storage-battery trucks and trailers has brought about a revolution in waterfront construction and design. These are exemplified in the several Army supply bases built during the war at a total cost of nearly \$145,000,000 (*A. Y. B.*, 1918, p. 322). These supply bases have been completed and have been in operation for a sufficient length of time to demonstrate the efficiency of the new system. The third floor of the many-storied warehouse is connected with the upper deck of the piers by an elevated runway across "the farm" and the marginal street. Large-size platform automatic micro-leveling elevators furnish the vertical movement between the decks of the piers and the various floors of the warehouse. Freight is loaded on trailers that are drawn in trains by electric trucks between any desired floor in either pier or warehouse with a minimum of delay and without rehandling the freight. This development in waterfront design is probably the most significant of any in the history of American ports.

Army Supply Bases.—The commercial uses of the Army supply bases in Atlantic ports, particularly at Boston, New York, Newark, Charleston, and New Orleans, has been given serious consideration. The Secretary of War designated a committee consisting of Brig.-Gen. F. T. Hines, chairman, Major-Gen. W. M. Black, representing the U. S. Shipping Board, Rear-Adm. H. P. Jones, representing the Navy Department, R. S. MacElwee of the Department of Commerce, and Lieut.-Col. John S. Pratt, secretary. The committee submitted a report in which it was pointed out that (1) the title to the Army supply bases should not go out of the possession of the Army as a matter of national defense, but that when not in use for shipments or storage of Army material, other interests may be permitted to

IX. PUBLIC RESOURCES AND PUBLIC WORKS

use the piers on a fee or a lease basis under control of the Department of War; (2) the United States Navy may be accommodated to a certain extent pending the time when the necessary Navy bases can be constructed; (3) the Shipping Board and other Government agencies should be given preference for berths and storage at the piers and warehouses; and (4) commercial interests fulfilling certain contract conditions should be permitted to lease portions of a base not required for use by Government agencies. The details of the conditions under which commercial interests may make use of an Army supply base have not been completely worked out. At the close of 1919 the bases had not yet become free for use for other than Army purposes.

Free Ports.—The question of "free ports" or "foreign-trade zones" has received considerable attention throughout the year, particularly in October, when extensive hearings took place before the Ways and Means Committee of the House concerning the Nolan bill (H. R. 9778) and before the Senate Committee on Interstate and Foreign Commerce on the Jones bill (S. 3170). These hearings have been published. The Tariff Commission, under the direction of Commissioner William Kent, has published an extensive report on the subject of foreign-trade zones and their advantages. No action was reached in the first session of the Sixty-sixth Congress, although there is a strong demand from all parts of the country that an act be passed to permit ports to establish free zones when desired. A free zone, or foreign-trade zone, is a waterfront inclosure of considerable size, 500 to 3,000 acres, with proper provisions along the inclosure and at the gates to protect the customs and to exercise customs supervision. The system is the expedient of a protective-tariff country to accomplish the results now attempted by the bonded warehouse, manufacturing in bond, and the drawback system with greater ease and less expense. The system has nothing to do either with free trade or with freedom from harbor dues. The term "free port" has come to mean just one thing, freedom from customs supervision until mer-

chandise is entered for consumption and passes the barrier into the country.

Port Surveys.—The Port Facilities Commission of the U. S. Shipping Board has carried on extensive research and investigation and collected a wealth of valuable material that should be more fully consulted by port authorities and shippers. The chairman of this Commission now disbanded, the work being continued in part by the Rivers and Harbors Board, was Major-Gen. W. M. Black, and Rear-Adm. H. H. Rousseau was Vice-Chairman. Several periodicals now give considerable attention to port-development questions: *Freight Handling and Terminal Engineering*, *Engineering News-Record*, *International Marine Engineering*, *Pacific Marine Review*, *Mississippi Valley Magazine*, *National Inland Waterways*, *South Atlantic Ports*, etc.

Construction.—New construction projected, in addition to the completion of that commenced in 1918, may be enumerated as follows, although this list is not exhaustive. The New York Staten Island development projects 12 municipal piers at a cost of \$20,000,000. Also at New York, Pier 6, East River, N. Y. Barge Canal Terminal, was opened in November, 1919. The Lehigh Valley project at Greenville, N. Y., on New York Bay, will cost from \$25,000,000 to \$50,000,000. A vehicular tunnel under the Hudson at New York has been authorized at a cost of \$12,000,000; Clifford M. Holland, engineer for the Public Service Commission, who built the two East River tunnels, is in charge (see also XX, *Civil Engineering*). Bridgeport, Conn., has an ambitious port plan to cost \$10,000,000. The Black Warrior River, canalized 444 miles from Mobile to Cordova, has received local terminal facilities at many points, such as at Tuscaloosa and the port of Birmingham, with a \$600,000 port corporation. At New Orleans final contracts have been let to connect the Mississippi River and Lake Pontchartrain by the Industrial Canal. New Orleans is to build a 1,000-ft. banana wharf. Twelve barges of 2,000 tons, 230 by 45 ft., have been put in operation between St. Louis and New Orleans on the Mississippi

IX. PUBLIC RESOURCES AND PUBLIC WORKS

River. Beaumont, Tex., is extending its port to accommodate increased traffic. Memphis has appropriated \$500,000 for river-port development. Seattle has almost completed its new Smith Cove Pier B at a cost of \$2,000,000; it is 365 ft. wide and 2,560 ft. long, a complete quay-system terminal. Wilmington, Del., expects to start soon on its port plan and a bond issue of \$2,500,000 has been authorized. At Oakland, Cal., a company has been formed to build a \$25,000,000 terminal at Berkeley on San Francisco Bay; \$2,000,000 must be spent within the first five years. Charleston Terminal, S. C., is to build six covered warehouses and wharves 1,200 ft. long, at a cost of \$17,000,000.

Other minor projects with their estimated costs follow:

Natchez, Miss.	\$100,000
Tacoma, Wash. (public project) ..	2,500,000
Tampa, Fla.	100,000
San Francisco, dry docks.	2,000,000
San Francisco, public	8,000,000
Pittsburgh district (U. S. A.) ..	1,800,000
Toronto, Ont. (Harbor Commission)	4,000,000
Buffalo Harbor, N. Y.	200,000
Everell, Wash.	8,500,000
Recondo, Cal.	300,000
Portland, Ore., private	2,500,000
Portland, Ore., public	5,000,000
Portland, Me.	1,750,000
Providence, R. I. (city)	250,000
Brownsville, Tex. (oil company)	1,00,000
Los Angeles, Cal.	4,500,000
New York Barge Canal terminals	500,000

New Jersey (Kellogg Co.)....	\$100,000
Black Warrior and Mississippi Waterways	2,250,000
	500,000
Baltimore, Md., Fishing Point, Petroleum	1,000,000
Baltimore, Md., other contracts ..	1,780,000
Baltimore, Md., 200-acre improvement	3,500,000
New London, Conn.	500,000
Cincinnati, Ohio	178,000
Jacksonville, Fla. (Texas Oil Co.)	150,000
New Orleans (Port Commissioners)	8,000,000
Philadelphia, dry docks	2,000,000
Philadelphia, Kenilworth Pier ..	750,000
Philadelphia, Cherry St. U. S. A., Treaty Pier, etc.	5,300,000
Providence, R. I.	500,000
Astoria, Oregon. (Port Commissioners)	3,000,000
Savannah, Ga., new and reconstruction	1,200,000
Memphis, Tenn., Terminal ...	200,000
Mobile, Ala., plans \$5,000,000. ...	370,000
Mobile, Ala., oil pier, Chatow Point	1,000,000
Helena, Ark.	200,000
Milwaukee, Wis. (proposed, \$500,000)	100,000
Montreal, Canada	3,150,000
Seattle, Wash., public and private	3,750,000
Vancouver, English Bay	5,000,000
Boston, Navy Yard	2,000,000
Chicago to Buffalo, Great Lake Ports (approx.)	4,000,000
Staten Island Sound, Arthurkill, N. J.	1,200,000
Norfolk, Va.	6,000,000
Port of New York, miscellaneous (approx.)	5,000,000
Port of New York, private and railroad (approx.)	2,500,000
U. S. Government, with dry docks (approx.)	11,000,000
Boston, Mass., warehouses near N. Y., N. H., & H. R. R....	2,500,000

X. PUBLIC SERVICES

RICHARD C. HARRISON

Public-Service Commissions.—The rising cost of operating public utilities during the war and the continued high prices of the year 1919 have placed a great strain upon the popularity of the state regulatory commissions. They have been flooded with applications for permission to increase rates and have been forced by the facts to grant many of them. (see also XIX, *Street and Electric Railways*; and XX, *Electrical Engineering*). The public has often resented their orders, particularly when applied to street-railway fares. The five-cent fare has become a fetish in many American cities, and flat increases, zone fares, and services at cost plans with sliding scales of rates are about equally unpopular. The universal experience has been that increases in rates have resulted in decreased patronage, sometimes sufficient in amount to offset the higher scale. Companies and public join in abusing the state commissions. In New Jersey, where a zone rate was granted to the street-railway system of the Public Service Corporation, the action of the Commission became a political issue of the first importance. The Corporation too is dissatisfied and has admitted that the zoning experiment is a failure.

In New York, as was noted in the YEAR BOOK for 1918 (p. 329), Governor Smith was pledged to changes in the public-service commissions law. In his first message to the legislature on the subject he recommended that instead of two state boards of five commissioners each, a single-headed commission with deputy commissioners be substituted. A number of bills were introduced in the legislature proposing various substitute plans. A compromise was finally agreed upon and embodied in Chapters 263 and 520 of the Laws of 1919. The

Second District Commission, which regulates all of the state except the City of New York was left undisturbed. The Commission of the First District was abolished and two new commissions established in its place. One of the reorganized boards, to be presided over by a single commissioner at \$15,000, with three deputies at \$7,500 each, assumed the regulatory functions of the former Commission. The rapid-transit construction functions of the old board were transferred to a transit construction commissioner, appointed for a five-year term with a salary of \$15,000, and a deputy at \$7,500. The expenses of the regulatory board are to be paid by the State, while the City of New York is to appropriate funds for the transit commissioner's work. To the position of regulatory commissioner the Governor appointed Lewis Nixon, a shipbuilder by profession, who at the time was state superintendent of public works. To the transit commissionership the Governor appointed John J. Delaney, who was serving as city commissioner of plant and structure under Mayor Hylan.

Commissioner Nixon almost immediately upon assuming office began a vitriolic controversy with Mayor Hylan over the refusal of the City authorities to grant the petitions of the street-railway lines for financial relief through higher fares than their franchises allowed. The City has declared that it will make no concessions, and that if the companies cannot operate at the five-cent fare, it will itself take over the operation of the system. The lines of the New York Railways Co., comprising the majority of the surface lines in the Borough of Manhattan, were placed under a receivership during the year, as were also the surface lines of the Brooklyn Rapid Transit Co. system.

The City has chartered a number of bus lines of the jitney type and has declared its intention of making the companies work out their own salvation. The subway and elevated lines of the Interborough Rapid Transit Co., in which the City is a partner to the extent of almost \$200,000,000, also tried in vain to secure authority to increase fares and the president of the Company has predicted financial disaster if relief is not granted before January, 1920. Stone and Webster stated in a report submitted to the U. S. District Court in December that an eight-cent fare was necessary to produce the necessary revenue.

As part of a general reorganization of the various state commissions and a consolidation in the line of efficiency (see also V, *State Administration*), the Massachusetts legislature of 1919 abolished the Gas and Electric Light Commission and the Public Service Commission and created a new Department of Public Utilities to take over their combined functions. The new Department is to have five commissioners appointed by the governor with the consent of the Council for initial terms of one to five years; their successors are to be appointed for five years. The chairman is to receive \$8,000 and the other commissioners \$7,000. All powers and duties of the former commissions are merged in and transferred to the new board. Appeals from its decisions are to be heard by the Supreme Court. Two commissioners may conduct hearings on contested cases, and routine or administrative matters may be heard by a single commissioner. The salaries and expenses of the Department are to be paid by taxation and not through a levy upon the companies regulated, as under the former law.

The Massachusetts Public Service Commission reached the interesting conclusion that increasing the rates on street railways is not a solution of the knotty problems which the companies are trying to meet. In an exhaustive and valuable analysis of the situation contained in its report of June, 1919, the Commission says:

With all their raising of fares, our companies seem little nearer financial salvation. . . . Viewing the matter in

the most favorable light, there is a chance that higher fares will in time cure the financial ills of our street-railway companies, but the chance does not seem great, and there is no immediate prospect of such a cure. In the meantime the increased rates are injuring the community in ways that are evident.

In Maine a special commission was created by the legislature of 1919 to investigate the water-power resources of the state, relieving the Public Utility Commission of its function in the matter. A report is required in 1921. An appropriation of \$40,000 was made for the study. The new board is composed of 10 members, including three members of the legislature and one delegate each from the Maine State Board of Trade, the State Grange, the State Federation of Labor, and the State Savings Bank Association. Commissioners are to receive \$5 a day and expenses.

In California by Chapter 215 of the Laws of 1919, the business of maintaining storage warehouses for food products is declared to be a public utility and is placed under the jurisdiction of the State Railroad Commission, which is given power to prevent discrimination in the granting of facilities.

Municipal Ownership.—With rising costs daily lessening the attractiveness of public utilities as private investments, there is an increasing pressure on our cities to assume the burden. The public clamors for better service than the companies can afford to render at rates which were fixed under conditions which seem unlikely to return. The companies see little hope of readjusting rates so as to bring back real prosperity, and they are beginning to look upon municipal ownership almost with relief. This feeling is reflected in numberless statements by operating men in technical papers and at professional conventions.

Governor Smith of New York included a permissive municipal-ownership bill in the general programme of social reform which he urged upon the legislature of 1919 as necessary for the after-war reconstruction of the state. An elaborate and comprehensive bill was drafted by the State Conference of Mayors through a committee composed of recognized public-

utility experts, which was amended at various times until it became a model bill, praised by experts throughout the country. The legislature, however, was of a different political faith from the Governor, and his entire programme, including the municipal-ownership bill, was defeated, although the latter passed the Senate. A vigorous fight for its passage during the next session is planned by civic organizations.

The present administration of New York City was elected upon a platform which declared for the immediate municipal ownership of all public utilities. Such an ideal was, of course, impossible of attainment, and no one who knew anything about the situation could have believed in its sincerity. Beyond refusing to grant new franchises and encouraging the establishment of jitney-bus lines to compete with or take the place of surface car lines, the Hylan administration in its first two years of office has done nothing toward bringing about municipalization.

Seattle completed the municipalization of its street car lines during 1919. The purchase involved the taking over of 600 cars as well as considerable real estate from the private company. Operation is under the city superintendent of public utilities. An interesting decision by the Washington Supreme Court cleared the way for the issue of bonds to purchase the property. The Washington law provides that cities may issue bonds in payment for a utility which are a first lien upon operating receipts. The Court held that this law was valid and constitutional and that the bonds did not constitute a part of the general city debt.

Governor Sproul of Pennsylvania vetoed the so-called Stadlander bill, passed by the legislature, which granted to municipalities the right to own and operate street railways beyond their municipal limits. The Governor based his action upon the injustice of permitting one municipality to exercise powers within the limits of another, a condition which might lead to very undesirable conflicts of jurisdiction.

Los Angeles has taken steps to sell its municipal cement plant, which

was built to furnish material for building the great city aqueduct. This plant, which is the only one owned by a municipality in the United States, is too large to maintain for *quasi* city purposes. It was deemed unwise to enter into general competition with private manufacturers through sales to outside interests.

The \$400,000 bond issue voted in Kansas City, Mo., for the construction of a municipal ice plant has been declared in violation of the state constitutional inhibition of the use of municipal funds in private business. The decision by the State Supreme Court was not unanimous and an appeal may be taken by the city.

According to a report issued by the U. S. Bureau of the Census, 128 of the 227 cities of over 30,000 population maintained municipal markets during 1918. In these cities a total of 237 markets was reported, 174 of which did a retail business, 14 a wholesale business, and 49 both wholesale and retail. The largest number of markets for any one city was 19 in New Orleans; Baltimore reported eight, and New York, nine.

Water Supply.—It is too soon after the war and conditions are still too unsettled and building costs too high to look for many important new municipal projects. This is true of waterworks as well as of other public utilities. The larger cities of the country are fairly well protected for some years against a shortage of water. New York, however, despite its enormous expenditure for the Ashokan water system, is still actively at work planning another great project to meet its needs. It seems probable that the Schoharie basin will soon be incorporated in the system.

By direction of the legislature, a study of the water-supply needs and resources of Massachusetts is being made by the State Department of Health and the Metropolitan Water and Sewerage Board. The investigation will include "all questions relating to the quantity of water to be obtained from available sources, its quality, the best method of protecting the purity of the water, the construction, operation and maintenance of works for storing, conveying and purifying the water; the cost of the

same, the damages to property, and all matters pertaining to the subject." The report is to be submitted to the legislature by Jan. 5, 1921. According to the chief engineer of the State Department of Health, besides the needs of Boston, consideration must be given very soon to the water-supply problems of the cities in southeastern Massachusetts in the Merrimac and Ipswich valleys and in the thickly populated areas to the west and south of the present metropolitan district.

Work is under way to increase the daily capacity of Toledo's waterworks from 34,000,000 gal. of filtered water to 56,000,000 gal., which it is estimated will take care of the city's needs for the next 15 years. According to the city's engineers, the present extensions will exhaust the probabilities of the Mommee River district, the watershed now in use, and further supplies can be had only from Lake Erie. The present work will cost about \$850,000 and will include 22 new low-pressure filters, each with a capacity of 1,000,000 gal. a day. The city has about 40,000 water-rent payers, of whom 550, mostly big factories and railroads, use about two-thirds of the water consumed.

San Francisco has won the condemnation suit brought to establish its right to take land in the Poopenant Valley four miles below the Hetch Hetchy Dam site, claimed by the Yosemite Power Co. The land was needed by the city for possible future additions to its mountain reservoir system.

A bond issue of \$1,800,000 for the construction of a filtration plant in the Sacramento River was voted by the City Commission of Sacramento, Cal., in June.

Bayonne, N. J. has increased its water supply from a daily amount of 16,000,000 gal. to 20,000,000 gal., with provision for 25,000,000 gal. from 1920 to 1925.

Lighting.—Rate cases continue to occupy much of the attention of the various state commissions regulating gas and electric companies, although these utilities seem to have weathered the financial storms of the past four years better than the street railways (see also XX, *Electrical Engi-*

neering). In New York the Consolidated Gas Co. has reopened the famous 80-cent gas case which was decided against it some years ago after a fight in the courts carried to the U. S. Supreme Court. The Company contends that rising costs have so reduced net revenues that the rate of 80 cents per 1,000 cu. ft. is now confiscatory. The State is opposing the suit vigorously.

The Illinois Public Utilities Commission ordered a reduction of three cents per 1,000 cu. ft., effective Aug. 1, 1919, in the rates for gas charged by the Peoples Gas Light & Coke Co. of Chicago. The new rates permit a charge of 35 cents for the first 350 ft., 85 cents per 1,000 for the next 10,000, and 80 cents per 1,000 for the next 40,000, and 65 cents per 1,000 for over 50,000 ft. The new rates will be in force till April 1, 1920. According to the Commission, the rate allowed will provide a return of \$2,480,000 over all expenses and allow a fair return on investment. The Company has predicted a far less encouraging result.

The U. S. Supreme Court has affirmed a decision of the Circuit Court upholding the franchise of the Nebraska Power Co. as perpetual. This brings to a close litigation which has been carried on by the City of Omaha for a number of years. Nothing is now left the city but to purchase the plant or start a competing system.

Columbus, Ohio has won its suit against the Federal Gas & Fuel Co. to compel it to pay the city 10 per cent. of its gross receipts from the sale of gas as required by a city ordinance adopted in 1899.

In St. Joseph, Mo., a bond issue of \$500,000 was approved on referendum vote during the spring to finance additions to the municipal electric-light plant so as to permit its use for commercial service. Public lighting has been supplied by the plant for several years.

The City Council of Los Angeles has approved the recommendation of the California Railroad Commission that profits from the sale of electric current by the municipal plant should be applied "so far as practicable to the construction of power plant No. 2" instead of being used as

X. PUBLIC SERVICES

formerly to redeem outstanding bonds. The city has already expended about \$1,250,000 for preliminary work on the new plant. The water of the great city aqueduct now passes the site of plant No. 2, where there is a fall of 530 ft. which is not now utilized to produce power. It is estimated that within two or three years the earnings of plant No. 1 will provide enough to complete the new plant.

Sewage and Refuse Disposal.—The pollution of New York Harbor continues to be a subject of grave concern, not only to the City of New York, but to the entire metropolitan district. Governor Smith has directed the State Board of Health to supplement the study which was made by the Metropolitan Sewerage Commission (*A. Y. B.*, 1914, p. 299) by a thorough investigation of harbor pollution by factories and gasometers producing coal tar or aniline by-product waste. The investigation is based upon complaints that a serious condition exists which is causing great injury to the paint on vessels and that the pollution of bathing beaches is highly injurious to health.

On Dec. 21, 1918, Baltimore let a

contract for disposing of its garbage by feeding to pigs, service to begin on May 1, 1919, and to continue till Dec. 31, 1923. The city is to receive about \$31,500 a year in revenue based upon a price per ton of $3\frac{1}{2}$ times the price per pound of live hogs on the Chicago market. The city provides a farm of 160 acres for the piggery and will provide for 15,000 hogs for the first year.

Buffalo has let a five-year contract for the disposal of its garbage by feeding it to hogs. The contractor is to pay 50 cents per ton as a minimum, with increases varying with the price of live hogs on the Chicago market and the quantity of separated garbage delivered yearly by the city. The city agrees to employ two, and if necessary three, inspectors to carry on an educational campaign for the separation of garbage from general refuse and to pass an ordinance prohibiting private garbage collection. The contract became effective on Oct. 1, 1919.

San Francisco has entered into a 10-year contract to dispose of its garbage, receiving \$1.26 a ton, or about \$50,000 a year on the basis of the amount now produced.

XI. MILITARY AND NAVAL

THE ARMY

CARL H. BUTMAN

Demobilization.—The year 1919 witnessed the demobilization of the army, a demobilization executed with even greater dispatch than was the raising of our forces for the Great War. The signing of the armistice on Nov. 11, 1918, found us with an army of 3,670,888 officers and men, which was reduced in one year to a total strength of 256,993. On Nov. 11, 1919, the great army was 93 per cent. demobilized. The most important difficulty in the process of demobilization lay in the fact that 2,000,000 men were overseas when hostilities ceased and had to be returned before they could be discharged.

In the 19 months during which the United States was at war over 24,000,000 men were registered. From this number the army of nearly four million men was formed, and 2,080,000 officers and men were shipped 3,000 miles overseas. Out of that number something like 1,390,000 got into battle; two out of every three American soldiers who got to France saw active service at the front. Of the 42 American divisions which reached France, 29 took part in active combat service, the others serving as replacements or arriving too late to reach the front.

The greatest number of American troops sent overseas in any one month was in July, 1918, when 306,353 men were shipped. This was considered a signal achievement, but less than a year later, during the month of June, 1919, 340,354 troops were returned to this country. Whereas it took the United States 13 months to get her first half-million men overseas, it required only five months to bring back the first 570,000, and within a year over 1,900,000 had been returned.

Scarcely a week had elapsed after the signing of the armistice before the

demobilization of the American army began. The first organizations to be discharged were 71 development battalions in the United States, embracing a total of nearly 100,000 men. This was followed by the discharge of such conscientious objectors as were not confined for military offenses, the spruce-production division, and the United States Guards. The general orders provided that demobilization should proceed in the following order: railroad troops; depot brigades; replacement camps; and, finally, combat divisions. It was a tremendous task to discharge such a large number of men, keeping track of their equipment, record cards, pay, bonus, allowances, war-risk insurance, etc., and making sure that proper medical examinations were given. For this purpose demobilization detachments were established at 36 camps and cantonments throughout the country, to which returned troops were forwarded for discharge.

The following points were utilized as demobilization centers during longer or shorter periods up to the close of the year:

Camp Beauregard, La.
Fort Bliss, Tex.
Camp Bowie, Tex.
Columbus Barracks, Ohio.
Camp Custer, Mich.
Camp Devens, Mass.
Camp Dix, N. J.
Camp Dodge, Iowa.
Camp Funston, Kan.
Camp Gordon, Ga.
Camp Grant, Ill.
Camp Greenleaf, Ga.
Camp Greene, N. C.
Camp Hancock, Ga.
Camp Humphreys, Va.
Camp Jackson, S. C.
Camp Kearney, Cal.
Camp Lee, Va.
Camp Lewis, Wash.
Camp Logan, Tex.
Fort Logan, Col.
Camp McArthur, Tex.

Camp McClellan, Ala.
 Camp Meade, Md.
 Fort Oglethorpe, Ga.
 Camp Pike, Ark.
 Presidio, San Francisco.
 Fort D. A. Russell, Wyo.
 Camp Sevier, S. C.
 Camp Shelby, Miss.
 Camp Sheridan, Ala.
 Camp Sherman, Ohio.
 Camp Taylor, Ky.
 Camp Travis, Tex.
 Camp Upton, N. Y.
 Camp Wadsworth, S. C.

General Pershing was directed to designate units of the A. E. F. for return to the United States as soon as they were no longer needed abroad and as fast as transportation could be secured. Plans were made also for securing discharges for individuals in exceptional circumstances. Most of the ships lent us by Great Britain, which carried over half of our troops overseas, were not available for their return, as they were in service taking home British colonial troops. The troop capacity of American transports was only about 110,000 men per month, and thus was necessitated an increase of the American transport fleet. The Army Transportation Service immediately began to convert cargo ships into troop-carrying vessels. But it took time; several ships upon which work was begun in December, 1918, were not ready for 55 days. The American transport fleet was finally completed, however, and during May returned 333,000 men, followed in June by over 340,000. The number of transports available at the signing of the armistice was augmented by the remodeling of 58 cargo transports, the assignment of certain battleships and cruisers by the Navy, and the use of 10 large passenger ships which originally belonged to Germany and several ships secured from other countries. (See also *The Navy, infra.*)

The greatest troop carrier of all the ships in the American service was the *Leviathan* (former *Vaterland*), which landed an average of 12,000 men per month. Of the purely American ships the *Mongolia* made the best record for transporting troops with a total of 55,000, taking 25,000 to Europe and returning 30,000 to the United States. In her eastern trips she was surpassed by the *Great Northern*, which carried over 29,000, and on her western trips by the *Manchuria*, which returned

over 39,000 men. Our troop ships averaged one complete trip every 35 days, the fastest transports being the *Great Northern* and the *Northern Pacific*, which made complete turn-arounds, took on new troops, and started back in 19 days. In the return of troops it is stated that \$60,-000,000 of the original estimate was saved.

By Jan. 4, 1919, the United States had demobilized 732,000 troops, whereas Great Britain had demobilized on that date but 316,000. But by Feb. 1, the numbers of Americans and British discharged were approximately equal, and after that date the British troops were demobilized much faster than the Americans. On May 1, the United States had discharged 1,900,000 troops, whereas France, with no sea transportation, had returned to the reserve over 2,200,000 men, in addition to over 600,000 serving in war-time production. Using American figures only, it appears that nearly twice as many discharges were effected during the late demobilization as during an equal length of time following the Civil War. The following table shows the number of officers and enlisted men discharged by months, from the date of the signing of the armistice to Nov. 11, 1919:

	Officers	Enlisted Men
1918:		
Nov. 11-30 ...	593	43,000
December	37,043	609,000
1919:		
January	23,563	358,000
February	14,913	263,000
March	11,479	263,000
April	12,185	298,000
May	14,622	383,000
June	13,588	391,000
July	16,404	361,000
August	15,986	151,000
September	8,716	73,000
October	8,690	33,000
Nov. 1-10	2,018	10,266

Present Strength.—Reports on Nov. 11, 1919, estimated the total strength of the Army as 256,993, not including nurses and field clerks. Of this number, 21,133 were in Europe, 691 on the high seas, 8,560 in Siberia, and 24,414 in United States possessions, leaving in the United States 202,195 officers and men. Many of the troops remaining in Europe and Siberia were

new recruits who had enlisted for the services.

The total of the commissioned strength of the Army on Nov. 11, 1919, was 17,000, comprising 8,320 emergency officers and 8,680 Regular officers. It is interesting to note that during the year 2,015 Regular Army officers resigned from the service. As 1,700 of them were lieutenants, it is evident that these resignations were due mainly to the inadequate pay of Army officers under the present high cost of living. Both War and Navy Departments declared after investigations that insufficient pay threatened the morale and was beginning to tell on the personnel of both the Army and Navy services. A bill in Congress which had the approval of both the Secretaries of War and the Navy provided for an increase in pay of approximately 30 per cent. for officers and 50 per cent. for men. The total amount for increase in the Army, as it appeared in the bill, provided nearly \$50,500,000 for the raise of enlisted men's pay, and \$10,500,000 for officers' increases. Toward the end of the year the Naval and Military Committees of Congress appeared to be ready to recommend legislation granting increased pay to officers and men in both services. (See also I, *Congress*.)

Early in the year Congress authorized the reopening of enlistments in the Regular Army for one- or three-year periods. Enlistments were reopened on Feb. 28 and to Nov. 15 totalled 140,566, about 60 per cent. being for one year. Some 17,000 of the recruits indicated preference for service in the A. E. F., and 5,000 requested service in Siberia.

During the year 1,874 Regular Army officers who held temporary rank were discharged from their higher war-time rank and returned to their regular status.

Civilian Personnel of the War Department.—Although the personnel of the Army had been reduced by practically 93 per cent. of its war-time footing within a year after the signing of the armistice, the civilian personnel of the War Department could not be reduced as rapidly or to as great an extent, due to the fact that a very large part of this personnel was necessary to carry on the demobilization of

the Army itself, the completion of records, the handling of casualties, the preparation of reports, and the commissioning of officers in the Reserve Corps, besides the regular routine work of the War Department. The office of the Adjutant-General as an exception had to add over 1,000 employees after the armistice instead of reducing the number. On Nov. 19 the civilian personnel of the War Department in Washington had been reduced 41 per cent. since the armistice. Of 37,406 employees in Washington on Nov. 11, 1918, 15,260 had been discharged. Besides this number large reductions of forces had been made in other cities.

Reserve Officers' Training Corps.—Following the armistice the Students Army Training Corps was demobilized (*A. Y. B.*, 1918, p. 793) and reorganized as the Reserve Officers' Training Corps in various schools and colleges. The discontinuance of the Students Army Training Corps caused the discharge of 3,961 officers and about 170,000 men and called for the payment to the institutions in which units were organized of \$12,500,000. Candidates for commissions in the Officers' Reserve Corps are now being trained in 351 units at 264 institutions. In June 90,000 students were under instruction, and 1,200 commissioned officers were detailed as instructors at approximately 190 schools. In the summer infantry training camps were operated at schools, army cantonments, and one fort for six weeks, during which time 3,400 students were in attendance. Late in the year, with the great decrease in the size of the army to be maintained for the coming year, a reduction in the instructor personnel of the R. O. T. C. was found necessary, which limited to a certain extent the number of units that could be maintained. (See also XXX, *Education*.)

Employment of Discharged.—When demobilization was begun, it became evident that the War Department should render assistance to its discharged soldiers in securing employment, and early in the spring of 1919 Col. Arthur Woods, late of the Air Service and formerly Police Commissioner of New York, was appointed to create an organization to handle the

problem. He established headquarters in Washington with a number of ex-officers as assistants. This office co-operated with chambers of commerce, labor unions, and employment services both Federal and state. Fifty thousand certificates were awarded to firms which agreed to take back discharged service men. Hundreds of posters and over a million copies of booklets were distributed in the endeavor to locate positions for discharged soldiers. As an instance of the work done in 97 cities alone during a period of four weeks, 41,548 former service men secured positions out of 47,546 who registered. In addition, up to Nov. 11, of 17,577 highly trained technical officers and men who requested assistance, 11,321 were placed. (See also XIV, *Unemployment*.)

Disposal of Army Property.—With the signing of the armistice it suddenly became necessary to dispose of millions of dollars worth of war contracts which must be terminated and adjusted. Vast parcels of real estate which had been rented or otherwise acquired by the War Department awaited disposition. Claims of various sorts were pressed for settlement. Great quantities of war stocks and of raw material, immediate and future supplies for the large army, were suddenly rendered surplus. It became necessary completely to reverse the processes of embarkation and shipment except for the supplies still needed overseas.

The stoppage of the manufacture of war material involved many complex considerations and problems. Because of the labor situation the demobilization of industrial organizations could not be effected immediately or simultaneously. It was necessary that the production of some supplies be continued and brought to a close gradually. There were involved in these questions the financial interests of industry to the extent of millions of dollars, necessitating the planning of a very comprehensive programme of settlement. The types of supplies, production of which might be continued for use as reserve stocks, such as ordnance, and the exact amount in which such material should continue to be produced had to be determined. Some manufacturers who had in good

faith undertaken the production of supplies had to be allowed to continue temporarily the manufacture of certain types of articles in order that they might be protected against financial loss. Exact methods for settling contracts and for making final payments and adjustments were evolved. The disposal by sale of surplus supplies necessitated the building of a sales organization.

Immediately upon the signing of the armistice a study of the situation was made in order to give the supply departments a basis for the cancellation of contracts and for the disposition of surplus stores. In the absence of legislation it was considered that an organization consisting of one complete army of 20 infantry divisions, one cavalry division, and the necessary artillery and miscellaneous and overhead troops should be provided for against the possibility of another war. This force totalled 1,447,000 men. It was decided that equipment should be kept on hand in the full amount required to keep and maintain the peace-time army, which, in the absence of action by Congress, was tentatively fixed at 500,000 men. This figure would be changed automatically when Congress took final action (see *infra*).

All supplies were divided into four classes: (1), those that could be obtained in the open market within 30 days, of which class there was to be no war reserve; (2), supplies that required more than 30 days and less than six months to procure, of which sufficient were to be kept on hand to expand the peace army into the war army with a complete initial equipment; (3) supplies requiring over six months and less than a year to procure, of which it was decided to retain an amount sufficient to maintain the war army for six months; and (4) supplies requiring over one year to procure, which were to be retained in sufficient quantities to maintain a war army for one year. All material on hand in excess of these quantities was ordered sold.

Up to Nov. 5, 1919, the Liquidation Commission, which handled all sales abroad, had made credit sales of surplus property to France and the liberated countries aggregating \$550,328,305. This amount did not include

XI. MILITARY AND NAVAL

sales to corporations and individuals in Europe. Sales in the United States reported to Nov. 8 totalled \$602,000,000 which was 9.5 per cent. greater than the total sales in Europe. The total for the United States covered sales of real estate and improvements and included \$123,245,240 in sales made prior to the establishment of the Office of the Director of Sales. The value of property sold abroad was: in France, \$400,000,000; in Poland, \$48,459,152; in Belgium, \$28,605,661; in Serbia, \$18,716,009; in Czecho-Slovakia, \$14,958,937; in Rumania, \$12,879,313; in Esthonia, \$10,820,117; in Ukrania, \$8,557,771; in Lithuania, \$4,414,861; in Latvia, \$2,538,313; and in Russia, \$378,171. The grand total for sales was \$1,152,328,305.

The value of 27,752 war contracts suspended was \$3,877,095,000, and of 22,596 contracts liquidated, \$2,091,436,000. The saving effected on the contracts liquidated, valued at \$2,091,436,000, was \$1,839,275,000. It cost the difference, \$252,161,000, to secure the relinquishment of these contracts. Partial payments in liquidation on other contracts amounted to \$78,951,000, making a total of \$331,112,000 paid in liquidation to Nov. 1. On that date 5,156 contracts remained to be liquidated. Of these the value of 2,292 was known and amounted to \$1,785,658,000. Assuming that future liquidation could be effected at the same rate of cost as had obtained in the past, the cost of liquidating these contracts was estimated at \$239,189,000.

The estimated cost of the property which the army in Germany will have for sale is \$132,000,000. A considerable amount of the surplus property in the United States will be disposed of, with the authority of Congress, by transfer to other Government departments. The value of property to be ultimately so disposed of will probably approach \$100,000,000.

The General Staff.—In his report for the fiscal year 1919 the Chief of Staff, Gen. Peyton C. March, pointed out some of the lessons of the Great War, among them the great impetus given to our industries during the mobilization of our national resources. General March believes that the ex-

perience gained therefrom has in some measure offset our previous lack of preparedness and the consequent cost of unreadiness to the nation. He points to the theory which was frequently advanced before the war that future wars, because of the terrible efficiency of modern war instruments, would be short and decisive. He shows that in spite of the fact that the scientific skill of the world was concentrated for four years on projects either for new death-dealing devices or for means of protection from them, the history of the Great War has shown this theory to be untenable. On the contrary, a modern war is a war of nations rather than of armies, involving mobilization of their entire resources and hence requiring for its decision a length of time comparable with that of previous wars.

Necessity for General-Staff control accentuates the need of a future War Department organization adequate to the efficient formulation and execution of a military programme which will require a definite and effective articulation of the War Department with all the agencies involved in the mobilization of the industries, activities, utilities, and resources of the nation. General March is convinced that without a properly organized and efficient General Staff, charged with authority to formulate and to execute the Army programme, it will be impossible in any future war, as it has been in this and every other war in our history, for the activities of the various agencies, services, and bureaus of the War Department to be controlled and directed, with promptness and effectiveness, to the attainment of the common end. It is stated without qualification that the success of an army in modern war is impossible without such a General Staff.

General March urged the necessity of an army of five corps, skeletonized to about 50 per cent. of war strength, to be used as a nucleus and recommended universal military training to ensure an adequate reserve of officers and men to enable it to expand to full strength.

The Adjutant General.—Besides handling enlistments, recruiting, and assignments of men, the Adjutant-General's Office also kept the records

of the demobilization. After the draft was completed, the records were turned over by the Provost-Marshall-General to the Adjutant-General. They comprised the records of 23,908,576 registrants, constituting a gross volume of 400,000 cu. ft. in cases. At present they fill 14 buildings, and although stacked one case upon another in some instances as high as five, they occupy 168,000 sq. ft. of floor space. All the records from the demobilization camps were eventually turned over to the Adjutant-General for filing and reference. The service records of the enlisted men alone, some four million cards, require 12,000 running ft. of space, and this is but one of the several sets of records kept for enlisted men. The Adjutant-General's correspondence alone in the month of May, 1919, averaged 546,986 letters daily. The volume of work handled during the year was nearly 95 times as great as during a normal year. His office also published and distributed over 148,000,000 orders, bulletins, and circulars, this work employing approximately 4,000 clerks.

The Judge Advocate-General.—

Criminal statistics of the Army during the fiscal year ending June 30, 1919, show a total of 1,948 officers tried by courts-martial, of whom 1,482 were convicted. During the same period 12,381 enlisted men were convicted out of a total of 14,230 tried. Out of other cases in the Army, 321 men were convicted out of a total of 369 tried. For officers, over 36 per cent. of the offenses charged consisted of drunkenness, absence without leave, and conduct unbecoming an officer and a gentleman. Fifty per cent. of the enlisted men were charged with desertion, absence without leave, disobedience, larceny, and sleeping on posts. In the A. E. F. only 10 men were executed, all by hanging and all for civilian crimes.

Cost of the War.—In estimating the total cost of the war with Germany from April 1, 1917, to April 30, 1919, the budget is divided into three headings, as follows:

War Department	\$13,987,202,000
Navy Department	3,056,400,000
Civil and miscellaneous..	4,311,265,000
Total	\$21,354,867,000

Of these expenditures, those of the War Department amounted to 65 per cent. of the whole. It is estimated that by July 1, 1920, the total expenditures will have passed the sum of \$26,000,000,000. Comparative figures show the cost of other principal wars in which the United States has been engaged to have been as follows:

1812	\$96,100,000
Mexican	74,986,000
Civil	3,221,154,000
Spanish	542,999,000

The estimate of the cost per man per year for the war with Germany is \$10,400. This is over a hundred times the cost per man per year for the Revolutionary War. It is also shown by the War Department statistician that our expenditures for the Great War would have carried on the Revolutionary War continuously for more than a thousand years. (See also III, *Statistical Summary of the European War.*)

War Casualties.—The casualties of the Great War began to come over in great numbers after the armistice was signed, and in November, 1919, there were still being issued a few casualties a day, gleaned from a research of the records. The revised list of casualties stands as follows, as of the end of February, 1920:

Killed in action (including 382 at sea)	34,249
Died of wounds	13,700
Died of disease	23,430
Died of accident and other causes	5,739
Wounded in action (over 85 per cent. recovered)	221,059
Missing in action, not including prisoners released and returned	3
Prisoners	4,432
Total	302,612

Separate casualties for North Russia and Siberia troops are shown in the reports on those forces in a subsequent section. (See also *The Navy, infra.*)

Compared with other wars of the United States, the deaths in the Great War stand second, the number in the Civil War being over four times as large. Whereas losses due to disease in the Civil War were over twice the battle losses, and in the Spanish War almost 10 times as great, such losses

XI. MILITARY AND NAVAL

in the Great War were less than half in the A. E. F. (See also XXV, *Medicine*.) The following comparative table shows the deaths in the armies of the United States in various wars:

War	Battle	Disease	Acci- dent and Other Causes	Total
Revolution	4,044	1	.....	4,044
1812 ...	1,877	1	.....	1,877
Mexican.	1,549	10,986	361	12,896
Civil ...	110,070	224,586	24,872	359,528
Spanish.	698	5,509	412	6,619
G r e a t				
W a r,				
A.E.F.	48,5803	23,692	5,326	77,598
Total.	166,818	264,773	30,971	462,562

1 The records of the Revolutionary War and the War of 1812 do not contain data relative to deaths by disease or other causes. It is probable that the number of deaths during these wars is greater than the number shown above, but owing to the paucity and incompleteness of the records it is impossible to furnish a more accurate statement.

2 The records show that 10,986 "ordinary" deaths occurred.

3 The battle deaths include 382 deaths at sea as the result of the enemy's acts. Figures do not include Marines.

A statistical report on hospital casualty cases due to enemy agencies, not including any killed in action, shows the greatest number of injuries were caused by gas, 74,573, yet out of that number of hospital cases only 1,194, two per cent., died. Shell and shrapnel appear to have been most deadly; out of 16,740 wounded by the former, 2,058, or 12 per cent., died in hospitals, while from shrapnel the loss was six per cent., 2,074 dying out of 32,753 cases. (See also III, *Statistical Summary of the European War*.)

Return of Our Dead.—Concerning the return of our dead from Europe, Secretary Baker announced in October that steps were being taken to bring back the bodies buried in Italy, Belgium, Germany, Great Britain, Luxembourg, and North Russia as soon as possible. Some delay was encountered before negotiations with France would permit of our bringing back the great number of dead buried in that country, but in November it was announced that such dead buried in France outside the Zone of the Armies might be

removed to this country under the authority of the French Government if request for such return was made. The Adjutant-General's office has received approximately 50,000 replies as to the disposition of the bodies of men who died overseas, about 71 per cent. of which indicated a desire that the bodies be returned. The remaining bodies will be buried in American cemeteries kept by caretakers which will constitute an American field of honor in France. No bodies will be left in Germany, Luxembourg, or North Russia. The transport *Lake Daraza* docked in November from North Russia, bearing 11 bodies, the first of our dead to be returned. The Secretary of War has emphasized the fact that the Government will bear all expense and that no private concerns are authorized to undertake the return to the home country of our soldier dead.

Decorations.—Approximately 6,000 Distinguished Service Crosses, including 125 to foreigners, were awarded for heroism in action during the war. Of this number, 5,271 were awarded in the A. E. F. The A. E. F. was also awarded 78 Congressional Medals of Honor for heroism. Of the new Distinguished Service Medals for efficiency in positions of great responsibility, approximately 1,200 were awarded, of which 941 were in the A. E. F. Among the recipients were about 400 foreign officers and civilians. Foreign decorations awarded to American soldiers have been estimated as follows: France, 13,142; Great Britain, 842; Italy, 684; Belgium, 630; and other countries, 86.

The award of a war-service medal for the Great War known as the Victory Medal, was authorized by the War Department on June 30, 1919. This medal will be awarded to all officers and enlisted men who served on active duty in the Army of the United States at any time between April 6, 1917, and Nov. 11, 1918, and whose service was honorable. Battle clasps and defensive-sector clasps for this medal will be awarded for major operations and defensive sectors, including North Russia and Siberia. To be eligible for a battle clasp the officer or enlisted man must have actually participated, under orders, in the engagement. A

service clasp will also be awarded to each officer or enlisted man who served overseas and is not entitled to a battle clasp as set forth above.

The American Expeditionary Force.—The chaotic state of government in Russia, the distress among the Russian people, and the intrigues and activities of German prisoners of war produced in 1918 a situation which had to be met and solved by the Allies (*A. Y. B.*, 1918, 198). After careful consideration the Supreme Inter-Allied War Council decided to send an expeditionary force to Archangel. The United States, in coöperation, mobilized at Aldershot, England, a force consisting of the 339th Infantry, a battalion of the 310th Engineers, the 337th Field Hospital, the 337th Ambulance Company, and the 310th Sanitary Train, totaling about 5,000 men. Col. George E. Stewart, 339th Infantry, was placed in command of this force and reported for duty to General Poole, commanding the British forces, at Archangel on Sept. 4, 1918.

The mission of the American Archangel Expedition, according to instructions prepared by the U. S. Ambassador to Russia, was as follows:

As the Government of the United States sees the present circumstances, military action is possible in Russia now only to render such protection and help as is possible to steady any efforts at self-government or self-defense, in which the Russians themselves may be willing to accept assistance, whether from Vladivostok or from Murmansk and Archangel. The only present object for which American troops will be employed will be to guard military stores which may be subsequently be needed by the Russian forces, and to render such aid as may be acceptable to Russians in the organization of their own self-defense. With such objects in view the Government of the United States will coöperate with the Governments of France and Great Britain in the neighborhood of Murmansk and Archangel.

The American forces remained in North Russia until June, 1919. During this time they occupied various positions along the Vologda Railroad and the Onega, Dvina, and Vaga rivers and were engaged in many minor operations against the enemy. (See also III, *The European War*.) The following were the casualties suffered by the expedition:

Killed in action, including presumed	28
Died of wounds	109
Died of disease	35
Died of accident and other causes	81
Total deaths	19
Wounded	244
Taken prisoner (all released)	305
Total casualties	4
	553

When the armistice was signed, it was impossible to remove this detachment and its supplies because of the climatic conditions. In April, 1919, Brig.-Gen. W. P. Richardson arrived and took command of the A. E. F. in North Russia. The 167th Company, Transportation Corps, arrived at the same time, but stopped at Murmansk in order to coöperate with the 168th Company, Transportation Corps, which had arrived in March, 1919, and was then engaged in construction on the Murmansk Railroad. In June, 1919, all the forces of the United States were withdrawn, except a small detachment of Engineers. By September the last of the American forces in Northern Russia were *en route* to the United States.

The American Expeditionary Forces sent to Siberia late in 1918 (*A. Y. B.*, 1918, p. 198) was composed of the 27th and 31st Infantry, from the Philippines, Field Hospital No. 4, Ambulance Company No. 4, a company of the 53rd Telegraph Battalion, Evacuation Hospital No. 17, Service Park Unit No. 333 of the Motor Transport Corps, Depot Company No. 146 of the Ordnance Department, a detachment of Engineers, and 5,000 men from the 8th Division, making a total force of about 9,000 troops of all ranks.

Major-Gen. Wm. S. Graves was in command. The troops arrived at Vladivostok, Siberia, from San Francisco and Manila in several contingents. General Graves disposed his forces at Vladivostok, along the Trans-Siberian Railroad, and stationed a detachment at the important mines of Suchan. In June, 1919, the first minor engagement with Bolshevik forces took place at Uspanka. This was followed by other minor operations against partisan bands and anti-Kolchak forces. (See also III, *The European War*.)

During the summer of 1919 an or-

ganized effort was made to procure voluntary applications for service in Siberia and to return and discharge as fast as possible all men who were enlisted or drafted for the emergency. Up to Sept. 13, 3,315 replacements had been sent to Siberia. Altogether over 5,500 enlistments for this service had been secured by Nov. 11.

The following is the list of casualties suffered by the American forces in Siberia to Oct. 1, 1919:

Killed in action.....	28
Died of wounds.....	8
Died of disease.....	41
Died of accident and other causes...	27
Suicide	5
Total	109

Early in 1920 our troops, then all voluntary service men, were recalled from Siberia and their embarkation for Manila had begun.

The Army of Occupation.—The American Army crossed the line established by the armistice at 5.30 a. m. on Nov. 17, 1918. This army, termed the Third Army, was commanded by General Dickman, and consisted of the Fourth Corps under General Muir, and the Third Corps under General Hines, the Seventh Corps being added later to the Third Army.¹ German territory was entered on Dec. 1, 1918, and on Dec. 17 the Third Army had finished the occupation of the zone assigned to it.

The territory of Germany occupied by the Allies includes the bridgehead at Cologne, held by the British, the one at Coblenz, held by Americans, and the one at Mainz, held by the French. These bridgeheads included all territory within a 30-km. radius from the towns mentioned. In addition there was a 10-km. neutral zone on the east bank of the Rhine.

General Pershing's Headquarters of the American Expeditionary Force left France on Sept. 1. The Army of Occupation in Germany was then greatly reduced in size, and its designation was changed to "American Forces in Germany." As organized on

Oct. 11, 1919, these forces had a strength of 519 officers and 10,399 enlisted men, under the command of Major-Gen. H. T. Allen, with headquarters at Coblenz.

The American forces still in France in December comprised mostly transportation and base troops, but the prospects were that they would be returned before the end of the year. These troops, numbering about 8,600, were under the command of Brig.-Gen. W. D. Connor, who with his staff, left France for the United States on Jan. 8, 1920. A special detachment of American troops from the A. E. F. was in Warsaw, Poland. It comprised mostly volunteers from the Medical Corps together with other detachments under command of Col. H. L. Gilchrist, M. C. A special detachment was left in Italy for some time to guard a supply depot but they were finally withdrawn.

Future Military Policy.—The period of demobilization found the United States without a settled military policy. The General Staff, as already noted, prepared and submitted to the Congress a bill, which if passed would place the military establishment of the United States in a position of increased effectiveness and more modern organization. Concerning this bill and the policy it was designed to effectuate, the Secretary of War in his report to the President for the fiscal year 1919 said:

The permanent military policy here suggested then embraces, first, such reorganization of the War Department as will preserve the efficient instrumentalities which have been developed during the war; second, an army which will be adequate in size to be the nucleus of any great military mobilization the country may be called upon to make; and third, an army of officers and men to whom the whole experience of military service will be an opportunity for self-development and education, the officers becoming a permanent corps of experts and the men a body temporarily devoting a portion of their time to military training in order that they may enter civil life with a sense of national service and with superior equipment for success. The accent is not upon the soldier, but upon the citizen, in such a policy.

¹ Fourth Corps, composed of First, Third, and Fourth Divisions; Third Corps, composed of Second, 32d, and 42d Divisions; Seventh Corps, composed of Fifth, 89th, and 19th Divisions.

The recommendations proposed as to size were for approximately 500,000 men for a peace-time army. The military policy recommended involves an

Army inspired with a new spirit and having wide civic usefulness. The plan contemplated the establishment of general training for officers and men, including both military and educational instruction. Officers would receive advanced tactical and professional schooling, and the skilled trades would be taught to men in the service who desire such instruction.

In December it appeared that the Committees of the House and Senate would recommend legislation providing for an Army of 250,000 combat troops, with officers and special services which would increase it to about 300,000. (See also I, *American History*.)

Late in the year it became apparent that Congress would enact legislation providing for some of the separate departments of the Army developed during the war. Among them was a centralized Air Service, a Chemical Warfare Service, and probably Tank and Motor Transport Corps. Considerable effort was made by Army officers to promote an independent Air Service to include military, naval, and civil aeronautics (see also XX, *Aeronautics*). A report rendered by Assistant Secretary of War Crowell and his associates on the American Aviation Commission to Europe called for an independent, centralized Air Service, but this report was not concurred in by the Secretary of War. Another report rendered by Major-Generals Menoher, Coe, Haan, and Snow recommended the establishment of a centralized Department of Aeronautics to direct experimentation, provide for production, and control various national and international matters connected with aeronautics. The board, however, held that the military and naval air services should remain integral parts of the Army and Navy, being completely under their respective control in both peace and war.

Of the great Army camps, cantonments, and flying fields built and operated during the war, it is apparent that Congress will authorize the retention of 16 National Army cantonments, namely, Custer, Devins, Dix, Dodge, Funston, Gordon, Grant, Jackson, Lee, Lewis, Meade, Pike, Sherman, Travis, Taylor, and Upton, and also Camp Kearney, a National Guard

STRENGTH OF NATIONAL GUARD

	Authorized Enlisted Strength	Present Enlisted Strength	Present in per cent. of Authorized
Minnesota	3,659	4,284	117
Texas ¹	11,427	11,796	103
Oklahoma	3,339	3,056	92
Maine	1,361	1,201	88
Kansas	2,267	1,866	82
Colorado	1,859	1,153	62
Washington	2,138	1,268	59
Tennessee	2,409	1,175	49
Arkansas	1,758	815	46
Iowa	2,545	1,156	45
Oregon	2,179	827	38
New Jersey	2,774	949	34
Dist. of Columbia	801	253	32
Missouri	4,400	1,298	30
Utah	713	175	25
Vermont	853	205	24
Rhode Island	1,004	222	22
Virginia	2,392	428	18
South Carolina	1,745	287	16
New York	9,473	1,408	15
California	3,303	502	15
Ohio	4,886	750	15
Florida	1,073	156	15
Alabama	2,454	336	14
Mississippi	1,879	104	6
Georgia	3,030	95	3
Hawaii	702	269	38
Other states	49,686	...	...
Total	126,109	36,039	29

¹ Figures subject to change due to reorganization.

camp. Camps Benning, Bragg, and Knox are being considered by the Military Committees of Congress, and Camps Humphrey and Eustis may also be retained as they have been asked for by the War Department. Besides the regular flying fields, it is believed that authority to retain the following will be granted: Brooks, Carlstrom, Chanute, Dorr, Ellington, Kelly No. 2, March, Mather, Mitchell, Park, Scott, and Souther.

The Seven Regular Army Divisions have been stationed at the following camps: First, Taylor; Second, Travis; Third, Pike; Fourth, Dodge; Fifth, Gordon; Sixth, Grant; and Seventh, Funston.

The Officers' Reserve Corps was composed on Oct. 31 of 52,839 officers, 14,773 being in the Infantry. The Secretary of War has insisted upon keeping all the former Army transport ships in the Army Reserve, so that they may be available in time of need.

The National Guard.—The preceding figures for authorized strength of the National Guard are based on the appropriation by Congress for the fiscal year 1920. Those for present strength are from latest returns for units extended Federal recognition. To Nov. 1, 23 states and Porto Rico had presented no units for Federal recognition.

The American Legion.—From the millions of veterans of the Great War has arisen the American Legion, a patriotic organization, non-partisan, non-political, non-military, and permitting of no distinction due to rank or place of service. Any soldier, sailor, or marine who served honorably between April 6, 1917, and Nov. 11, 1918, and all women enlisted or commissioned in either branch during the same period are eligible. The Legion was incorporated by Act of Congress of Sept. 16, 1919.

The Legion had its inception informally in Paris on March 15, 1919. The action of this meeting was endorsed by a meeting at St. Louis, on May 8-10, when a tentative constitution was drawn up and a suggested plan of organization adopted. The formal organization of the Legion was completed in its first annual convention at Minneapolis, Nov. 8-14. This meeting ratified the work of the St. Louis caucus, adopted a constitution, organized the national Legion into state departments and posts, and planned action for the year, most of which was connected with welfare legislation for service men and women and aggressive Federal action against disloyalty, draft evaders, slackers, and propagandists seeking the overthrow of the Government whether peaceably or by violence. Through its legislative committee it urged the enactment of the American Legion Home Founding Act, embodying reclamation of lands and direct loans to service men and women for purchase of farms and city homes. It also urged the revision

of the present immigration policy, abrogation of the "gentlemen's agreement" with Japan, appointment of committees to study Pacific Slope conditions, and such changes in the Department of Justice as shall make it an aggressive agent in combating disloyalty. It further urges Congress "to pass such acts as will require the basis of all instruction in elementary public and private schools to be in the American language, and as will require alien residents in this country to acquire a knowledge of the American language."

The Committee on Military Policy reported against a large standing army and in favor of universal military training, but opposed compulsory military service in times of peace and suggested "a national military and naval system based on universal military obligation, with a relatively small regular Army and Navy and a citizen army and navy capable of rapid expansion; competitive and progressive training for all officers being provided." It further suggests that "the whole system be subject to civil authority."

The purpose of the Legion is thus set forth in the constitution:

To uphold and defend the Constitution of the United States; to maintain law and order; to foster and perpetuate 100 per cent. Americanism; to preserve our memories and incidents in the Great War; to inculcate a sense of individual obligation to the community, state, and nation; to safeguard and transmit to posterity the principles of justice, freedom, and democracy; to consecrate and sanctify our comradeship by our devotion to mutual helpfulness.

The Legion is officered by a national commander, Franklin D'Olier of Philadelphia, five national vice-commanders, a national adjutant, and state department and post chairmen. Its legislative body is the annual convention and the executive committee. The national headquarters are in Indianapolis.

THE NAVY

JOHN WILBER JENKINS

Troop Transportation.—Bringing home 1,700,000 of the two million men of the American Expeditionary Forces in France and all but a few of

the 400 vessels and 81,000 officers and men of the U. S. Naval Forces Operating in European Waters; demobilizing the numerous American naval and

XI. MILITARY AND NAVAL

aviation bases in Europe; reducing to peace-time requirements the naval personnel of more than half a million and the 75,000 officers and men of the Marine Corps—the U. S. Navy was almost as busily engaged in 1919 as it was during the period of actual hostilities. In many respects demobilization presented more difficulties than had expansion for war.

The large tonnage of British and other foreign shipping used in transporting troops to Europe was no longer available. This country had to depend on its own transport resources and create new facilities. The first step was to increase the troop-carrying capacity of the transports in service, this being possible because it was no longer necessary to carry guns and gun crews and to maintain the elaborate precautions against submarine attack. The capacity of the *Leviathan* was increased from 10,000 to 12,000 troops; of the *America*, from 4,900 to 7,000; of the *George Washington*, from 3,500 to 6,700; and others in proportion. This was done by the installation of "standees" and increase of ventilation, galley, and other facilities and life-saving equipment. Fifty-six cargo ships which had been carrying supplies and munitions were converted into troop transports. Nine large German passenger vessels held in German ports during the war (*Imperator*, sister ship of the *Leviathan*, *Kaiserin Augusta Victoria*, *Prinz Friedrich Wilhelm*, *Zeppelin*, *Cap Finisterre*, *Graf Waldersee*, *Patricia*, *Pretoria*, and *Mobile*), which had been taken over by the Inter-Allied Commission, were assigned to the United States, manned by the Navy, and put into service. To hasten the movement it was decided also to utilize men-of-war in troop transportation, and 15 dreadnought battleships (*Connecticut*, *Georgia*, *Kansas*, *Louisiana*, *Michigan*, *Minnesota*, *Missouri*, *Nebraska*, *New Hampshire*, *New Jersey*, *Ohio*, *Rhode Island*, *South Carolina*, *Vermont*, and *Virginia*) and 10 cruisers (*Charleston*, *Frederick*, *Huntington*, *Montana*, *North Carolina*, *Pueblo*, *Rochester*, *Seattle*, *South Dakota* and *St. Louis*) were so employed. They brought back more than 145,000 troops—the battleships 78,788, and the cruisers 66,481.

Within seven months after the signing of the armistice 1,500,000 American soldiers had been brought home. By Oct. 1 the number reached 1,933,156, of whom 1,675,733 were returned in U. S. transports manned and operated by the Navy. The following table shows the progress of troop transportation from Europe:

	Carried by U.S. Trans- ports	Carried by All Other Ships	Total All Ships
1918:			
Nov. . .	7,689	508	8,197
Dec. . .	47,228	22,861	70,089
1919:			
Jan. . .	97,039	23,097	120,136
Feb. . .	96,368	44,463	140,831
Mar. . .	165,312	42,049	207,361
April . .	243,697	30,806	274,503
May . .	278,600	34,610	313,210
June . .	314,167	26,779	340,946
July . .	268,049	27,162	295,211
Aug. . .	112,694	2,127	114,821
Sept. . .	44,890	2,961	47,851
Total	1,675,733	257,423	1,933,156

Previous to the armistice 12,211 troops and passengers, mostly sick and wounded, had been returned to the United States, of whom 11,211 were carried in Naval transports and hospital ships. Thus, a total of 1,686,944 troops and passengers were transported from Europe in vessels manned and operated by the Navy. As 911,047 troops had been carried to Europe in our troopships during the period of hostilities, the total number transported by the Navy reached 2,597,991 up to Oct. 1, 1919, and a few thousand returned since that time brings the number above 2,600,000.

Of the total of 2,079,880 troops transported to Europe during the period of hostilities, in 1,142 sailings, British ships carried 1,006,987, or 48.25 per cent.; U. S. Navy transports, 911,047, or 43.75 per cent.; other American vessels, 41,534, or 2.5 per cent.; British-leased Italian ships, 68,246, or three per cent.; and other vessels, French, Italian, etc., 52,066, or 2.5 per cent. Of the total number carried, however, 1,720,360 (82.75 per cent.) were under U. S. Navy escort, 297,903 (14.125 per cent.) under British escort, and 61,617 (3.125 per cent.) under French escort. Without the aid of the British and

other Allied navies it would have been impossible to have transported our troops to Europe with the rapidity with which they were dispatched from April to October, 1918; yet the high-water mark for a single month, 311,359 in July, 1918, was far exceeded in June, 1919, when 340,946 were brought back from France, 314,167 in U. S. Naval transports. (See also *The Army, supra.*)

The maximum number of vessels assigned to and operated by the Navy for troop transportation was 142, with facilities for carrying 13,914 officers and 349,770 men. Adm. Albert Gleaves was in command of the Cruiser and Transport Force from its creation in May, 1917, up to Sept. 1, 1918, when he was detached to take command of the Asiatic Fleet; he was then succeeded by Rear-Adm. C. B. Morgan.

Cargo Transportation.—The Naval Overseas Transportation Service organized in January, 1918, to transport supplies and munitions for our military and naval forces overseas (*A. Y. B.*, 1918, p. 349) had in operation at the time of the armistice 378 vessels of 2,900,000 deadweight tons. A total of 490 cargo vessels (3,800,000 deadweight tons) had been assigned to this service, many of these being built by the U. S. Shipping Board and manned by Navy crews as they were completed. Some 6,000,000 tons of cargo were transported by "N. O. T. S." vessels. Fifty or more of these ships were converted into troop-carriers. As military needs decreased, the vessels were returned to the Shipping Board, Army, or private owners, and within a year practically all this vast fleet had been demobilized.

Sweeping the Northern Mine Barrage.—The clearing of the Northern Mine Barrage, stretching across the North Sea 230 miles from the Orkney Islands to Norway (*A. Y. B.*, 1918, p. 349), was one of the most difficult tasks of the Navy. Eighty per cent. of this barrage, 56,611 mines, had been laid by American vessels, and 13,652 by the British; under the agreement, each navy was to sweep up its part of the mine field. As mines were laid to a depth of 250 ft. sweeping them required new methods and new gear, and months were spent in experiments

and practical tests. Early in May active work was begun, Rear Adm. Joseph Strauss, in command, establishing a base at Kirkwall; and by Sept. 30 the entire mine field was swept. In this difficult and dangerous work some casualties were inevitable. Eighty-two vessels were employed in sweeping operations—36 sweepers, 20 trawlers, 24 submarine chasers, one salvage vessel, and two repair ships. Twenty-three ships were damaged, but only one, the *Richard Buckley*, was sunk, with the loss of her commanding officer, Commander F. R. King, and six men of her crews. In all, two officers and nine men were killed in the mine-sweeping operations. The Mine Fleet, returned home in November and was reviewed by the Secretary of the Navy at New York.

New Fleet Organization.—The most important and far-reaching innovation of the year from a naval standpoint was the new fleet organization put into effect in July, creating two divisions of practically equal strength, the Atlantic Fleet, under command of Adm. Henry B. Wilson, and the Pacific Fleet, under command of Adm. Hugh Rodman. Both divisions embrace as nearly as possible the same number of each type of ship. The table opposite shows the composition, tonnage, and major vessels in each.

This move provoked considerable criticism from some naval officers, as well as civilians, who regarded it as a violation of the principle enunciated by Mahan that the Fleet should never be divided. Secretary Daniels in his annual report sets forth his reasons for the new policy, saying that "it has been a source of regret to all who believe equal protection should be given to all portions of our coasts that our Navy has heretofore lacked enough ships to warrant two great divisions, one in the Atlantic and one in the Pacific"; that "it is a matter of national congratulation that our naval strength at last permits this, along with the utilization of the Panama Canal for the defensive purpose for which it was constructed"; and that with the open Panama Canal the Atlantic and Pacific fleets could effect a junction in either ocean and "carry out the plans already formulated for operating as one fleet before any

XI. MILITARY AND NAVAL

FLEET ORGANIZATION OF THE U. S. NAVY

ATLANTIC FLEET	Number of Vessels	Displacement, tons	PACIFIC FLEET	Number of Vessels	Displacement, tons
Battleships	15		Battleships	14	
<i>Arizona</i>		31,400	<i>Arkansas</i>		26,000
<i>Connecticut</i>		16,000	<i>Georgia</i>		14,948
<i>Delaware</i>		20,000	<i>Idaho</i>		32,000
<i>Florida</i>		21,825	<i>Mississippi</i>		32,000
<i>Kansas</i>		16,000	<i>Nebraska</i>		14,948
<i>Louisiana</i>		16,000	<i>New Jersey</i>		14,948
<i>Michigan</i>		16,000	<i>New Mexico</i>		32,000
<i>Minnesota</i>		16,000	<i>New York</i>		27,000
<i>Nevada</i>		27,500	<i>Rhode Island</i>		14,948
<i>New Hampshire</i>		16,000	<i>Tennessee</i>		32,300
<i>North Dakota</i>		20,000	<i>Texas</i>		27,000
<i>Oklahoma</i>		27,500	<i>Vermont</i>		16,000
<i>Pennsylvania</i>		31,400	<i>Virginia</i>		14,948
<i>South Carolina</i>		16,000	<i>Wyoming</i>		26,000
<i>Utah</i>		21,825			
Total		313,450	Total		325,040
Cruisers	4		Cruisers	7	
<i>Chester</i>		7,350	<i>Birmingham</i>		3,730
<i>Columbia</i>		3,750	<i>Cleveland</i>		3,200
<i>Huntington</i>		13,680	<i>Denver</i>		3,200
<i>Rochester</i>		8,150	<i>Minneapolis</i>		3,750
Total		32,930	<i>Salem</i>		14,500
Gunboat	1	2,255	<i>Seattle</i>		3,200
Converted yacht	1	2,600	<i>Tacoma</i>		
Destroyers (includes 53 in reserve division)...	107	123,184	Total		38,950
Destroyer tenders	3	18,094	Destroyers (including 54 in reserve division)	108	129,191
Submarines (assigned, but not yet completed).	16		Destroyer tenders	5	37,270
Sub tenders	3	16,940	Submarines	14	
Mine layers	2	7,883	Sub tenders	2	15,770
Mine sweepers	12	11,400	Mine layers	2	8,213
Tugs	12	9,870	Mine sweepers	12	11,400
Repair ship	1	12,585	Tugs	11	9,117
Hospital ships	2	15,812	Repair ship	1	12,585
Supply ships	2	14,500	Hospital ship	1	10,102
Fuel ships	8	96,910	Supply ships	3	32,075
Target-repair ship	1	3,285	Fuel ships	10	153,740
			Target-repair ship	1	5,059
			Radio-repair ship	1	484
Total of vessels.....	189		Total of vessels.....	192	
Total of displacement (exclusive of submarines)...		681,698	Total of displacement (exclusive of submarines) ..		789,996

enemy could try conclusions with us." The Secretary declares:

The organization has been so perfected that when at stated periods they are consolidated, not a single additional order will be necessary for all units of both divisions to act as one mighty fleet. The unified command is settled, and well worked out plans will make the American Fleet function with as much efficiency as if there were not two divisions in separate oceans. Indeed, the training in the two oceans will make them more fit, for in the past our dreadnaughts have practiced in only one ocean, whereas it is planned, in the course of time, for all the ships and all the personnel to sail both oceans and be as much at home in one as in the other. This new organization increases the ef-

fectiveness of our naval forces and practically doubles the field and extent of our fleet training in tactics and war problems. Each fleet is at all times within supporting distance of the other and all the ships of both could combine into one fleet before an enemy could, in any important strength, attack either coast. The Navy by this means not only protects each of our long seacoasts, but places a wall of steel around our ocean boundaries which produces a sense of security such as we have never enjoyed before.

Sailing from Hampton Roads, Va., on July 19, 1910, the Pacific Fleet, led by Admiral Rodman's flagship *New Mexico*, passed through the Panama Canal July 25-27, arriving

at San Diego, Cal., on Aug. 9. The fleet was received with great enthusiasm and visited the principal cities on the Pacific Coast.

Fleet Maneuvers.—After the return of our battleships from European service, the "United States Fleet" under command of Adm. Henry T. Mayo, was organized in January, 1919, consisting of Battleship Force 1, Battleship Force 2, Cruiser Force, Destroyer Force, Mine Force, Train, Submarine, and Air Detachments. This fleet with the exception of Battleship Force 1 and the Cruiser Force, which were engaged in transporting troops, held extensive maneuvers at Guantanamo, in which for the first time in our Navy battleships, destroyers, submarines, and aircraft took part in fleet exercises as component parts of one force. Enough destroyers were present with battleships to simulate the operations of a destroyer force in a major action; aircraft located a force at sea and enabled submarines to simulate a successful attack; aircraft took the air from turrets of battleships at sea; and submarines operated with battleships over an extended period, steaming continuously between battle exercises. Long-range gunnery practice, held both in Cuban waters and later off the Chesapeake Capes, proved highly successful. Spotting from airplanes, seaplanes, and kite balloons was carried out for the first time.

New Construction.—During the 12 months ending Oct. 1, 1919, 259 new vessels were completed, including one battleship, the *Idaho*, 103 destroyers, 32 submarines, 52 "Eagle" boats, 36 submarine chasers, one fuel ship, 31 mine sweepers, and three seagoing tugs. Another dreadnaught, the *Tennessee*, is practically completed and will soon be placed in commission. The *California* was launched in November, and work is being pushed on other dreadnaughts. There are now under construction 12 battleships, six battle cruisers, 10 scout cruisers, two gunboats, eight auxiliary vessels, 136 destroyers, 58 submarines, eight "Eagle"-class patrol vessels, six mine sweepers, and 14 seagoing tugs, a total of 260 vessels. As destroyers are being delivered at the rate of 10 a month, it is expected that all now contracted for will be completed dur-

ing 1920. A new world's record was made in the construction of the destroyer *Reid*, built at Squantum, Mass., which was completed in 45½ working days and delivered in 56 days after her keel was laid. Following is the total number of vessels now in the Navy and under construction, their tonnage, horse power, and batteries:

VESSELS BUILT

Vessels fit for service, including submarines	791
Total displacement (normal), exclusive of submarines, tons...	1,904,365
Total horsepower, exclusive of submarines	6,269,120
Batteries (3-in. guns and above), exclusive of submarines:	
14-in. ..100 10-in. .. 18 5-in. .. 375	
13-in. .. 36 8-in. ..160 4-in. ..1,082	
12-in. ..146 6-in. ..203 3-in. ..1,120	
Torpedo tubes.....	2,111

VESSELS BUILDING

Vessels under construction, including submarines	283
Total displacement (normal) exclusive of submarines, tons...	1,256,415
Total horsepower (estimated), exclusive of submarines.....	6,222,550
Batteries (3-in. guns and above), exclusive of submarines:	
16-in. ..152 6-in. ..140 4-in. .. 566	
14-in. .. 24 5-in. ..128 3-in. .. 312	
Torpedo tubes.....	1,748

The table opposite, covering the entire war and subsequent period, shows the number of vessels of each type in the Navy, those built and under construction:

Battleships and Battle Cruisers.—To study the latest naval developments and the results of war experience in other navies, Secretary Daniels, Rear-Adms. D. W. Taylor, Chief Constructor, R. S. Griffin, Engineer-in-Chief, and Ralph Earle, Chief of the Bureau of Ordnance, made a trip to Europe in the spring, conferred with the British, French, and Italian admiralities, and inspected the newest types of vessels under construction. On their return, the General Board, with Admirals Sims, Mayo, and Rodman and the three Bureau chiefs, gave extended consideration to the question of possible changes in design of the six latest battleships and six battle cruisers authorized. They recommended that the battleships should be completed on present lines of development, but that additional protection, particularly to turrets,

XI. MILITARY AND NAVAL

VESSELS OF THE U. S. NAVY

Type	Fit for Service, April 6, 1917	Fit for Service, Nov. 11, 1918	Completed be- tween Jan. 1, 1917, and Oct. 1, 1919	Fit for Service, Oct. 1, 1919	Under Construc- tion and author- ized Oct. 1, 1919	Total Built or Building Oct. 1, 1919
Battleships (single calibre)....	14	16	3	17	12	29
Battleships (mixed calibre)....	23	23	.....	23	.....	23
Battle cruisers.....	.....	.....	.....	.....	6	6
Armored cruisers.....	9	8	.....	8	.....	8
Monitors.....	7	7	.....	7	.....	7
Cruisers, first class.....	4	4	.....	4	.....	4
second class.....	4	4	.....	4	10	14
third class.....	16	15	.....	15	.....	15
Destroyers.....	50	95	139	183	136	319
Coast torpedo vessels.....	16	15	.....	.....	.....	.....
Torpedo boats.....	17	17	.....	.....	.....	.....
Submarines.....	44	80	57	99	67	166
Gunboats.....	28	38	.....	29	2	31
Patrol boats (Eagle).....	.....	3	52	52	8	60
Converted yachts.....	14	14	.....	6	.....	6
Sub chasers.....	.....	295	341	174	.....	174
Tugs and mine sweepers.....	49	63	50	102	20	122
Auxiliaries: Fuel ships.....	22	21	1	21	14	35
Special type.....	21	46	1	45	7	52
Transports and miscellaneous..	4	5	1	4	1	5
Total.....	342	774	645	791	283	1,074

conning towers, magazines, and communication, should be given the battle cruisers at the expense of a small reduction in speed. The six battleships will be of 43,200 tons displacement, with a speed of 23 knots, and the battle cruisers will have a displacement of 43,500 tons with a speed of 33.25 knots. It will require engines totaling 180,000 h.p. to drive each battle cruiser; each battleship will require engines of 60,000 h.p. When the vessels now under construction or authorized are completed, the machinery of the fleet will reach a total of more than 13,000,000 h.p., five times what it was before the war. Of this amount about 8,000,000 h.p. represents the machinery of the new destroyers, which have engines of 27,000 to 28,000 h.p.

The new battleships and battle cruisers will be armed with 16-in. 50-calibre guns, more powerful than any navy is now placing afloat. The projectile weighs 2,100 lb., and the muzzle energy developed is 115,000 ft.-tons. These guns are an improvement over the 16-in., 45-calibre guns with which battleships 45, 46, 47, and 48 are being armed. The Naval Gun Factory has succeeded in greatly improving

methods of gun making up to five-inch which result in a lighter gun for the same power.

Work is being pushed on the large armor-plate plant at Charleston, W. Va., where the Navy during the war completed and put into operation a large projectile factory. A new torpedo-manufacturing plant has been built at Alexandria, Va., a new proving ground has been completed on the Potomac River, and the Naval Gun Factory at Washington and the powder factory at Indian Head, Md., have been greatly enlarged.

Dry Docks.—Dry docks capable of accommodating the largest vessels afloat have been completed at the Norfolk, Va., Navy Yard, one having been built by the Navy and two by the U. S. Shipping Board. The 1,000-ft. dry dock at Pearl Harbor, Hawaii, was put into operation on Aug. 21, the new structure having been successfully erected on the site where the old dock was destroyed, while under construction, by a seismic upheaval in 1913. The Navy has also taken over and completed the large Commonwealth Dock which was being erected at Boston by the State of Massachusetts. A replica of the Norfolk dock is under

XI. MILITARY AND NAVAL

WARSHIP TONNAGE OF THE WORLD'S PRINCIPAL NAVIES, NOV. 1, 1919¹
(Compiled by the Office of Naval Intelligence)

Type	Great Britain		United States		France		Japan		Italy		Russia ²		Germany ⁴	
	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage	Number	Tonnage
VESSELS BUILT														
Battleships	52	1,060,000	31	643,690	17	327,908	11	244,082	9	158,060	7	139,800	6	78,136
Battle cruisers	9	206,300	...	...	...	...	4	110,000	...	...	...	...	...	...
Cruisers	23	277,600	8	111,900	13	143,549	7	75,268	...	38,462	7	56,525	...	...
Light cruisers	79	328,440	12	53,280	1	2,421	8	32,790	6	19,538	...	...	6	21,300
Coast-defense vessels	31	108,050	4	12,900	...	...	2	26,190	...	1,650	...	...	...	...
Flotilla leaders	33	56,647	...	...	...	...	...	...	...	(?)	...	...	...	...
Torpedo-boat destroyers	353	463,823	184	207,468	66	37,515	64	40,193	35	22,766	67	45,438	12	15,050
Torpedo boats	32	8,825	...	...	67	6,610	9	1,263	96	13,155	...	...	12	2,400
Submarines	200	181,526	100	41,338	58	34,752	24 ³	10,640	...	21,460	20	12,385	...	...
									3	(?)				
Total	812	2,691,211	339	1,070,576	222	552,755	129	540,426	237	287,923	101	254,148	36	116,886
VESSELS BUILDING AND PROJECTED														
Battleships	...	...	12	421,600	9	240,150	4	120,000	4	123,600	1	27,300	...	...
Battle cruisers	1	41,200	6	261,000	...	...	8	320,000	...	...	4	130,000	...	...
Cruisers	...	...	10	71,000	...	...	...	(?)	...	...	...	...	...	...
Light cruisers	9	66,230	...	...	...	...	34	(?)	...	...	8	57,600	...	...
Coast-defense vessels	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Flotilla leaders	2	3,500	...	...	...	...	...	...	...	11,385	...	...	...	...
Torpedo-boat destroyers	10	13,300	136	164,826	1	890	77	(?)	10	8,740	20	26,450	...	...
Torpedo boats	...	...	12	(?)	...	...	...	...	4	640	...	...	...	...
Submarines	12	14,220	57	48,476	...	...	80	(?)	5	2,436	27	28,826	...	...
			10	(?)	9	6,078	...	...	...	...	...	...	...	...
Total	34	138,450	243	966,902	19	247,118	203	440,000	29	146,801	60	270,176	...	...
Grand total, built, building, and projected	846	2,829,661	582	2,067,478	241	799,873	332	980,426	266	434,724	161	524,324	36	116,886

¹ Obsolete vessels not included; battleships, battle cruisers, cruisers, light cruisers, and coast-defense vessels over 20 years old; others over 15 years old. ² Little definite information available. ³ Seven surrendered German submarines not included. ⁴ The German Navy as provided for in the Treaty of Peace; the Austrian-Hungarian Navy has been practically all surrendered to the Allies.

construction at the Philadelphia Navy Yard, and it is announced that work will soon begin on a similar dock at the Charleston, S. C., Navy Yard. A special board investigated all the proposed sites and existing navy yards and bases on the Pacific Coast and recommended an extensive programme of improvements in that region and the development of Pearl Harbor, Hawaii, as an important naval base.

Naval Aeronautics.—The most notable aviation accomplishment of the year was the flight across the Atlantic, the seaplane NC-4 being the first to accomplish this feat. Three of the huge Navy-Curtiss planes (see XX, *Aeronautics*) were selected for this enterprise. The route chosen was from Rockaway, N. Y., to Halifax, N. S., to Trepassey, Newfoundland, to the Azores, to Lisbon, Portugal, and thence to Plymouth, England. Destroyers were stationed along the entire route at intervals of 75 miles to act as guide ships, gather weather information, and give assistance, if needed.

Starting from Rockaway at 10 a. m. on May 8, the NC-1, Lieut.-Commander P. N. L. Bellinger commanding, and the NC-3, Commander J. H. Towers commanding, reached Halifax the same evening. The NC-4, commanded by Lieut.-Commander Albert C. Read, met with trouble in oil feed, descended at a point about 80 miles off Cape Cod and remained on the water all night, "taxying" under her own power next morning to the naval air station at Chatham, Mass. After two days at Halifax the NC-1 and NC-3 flew to Trepassey. There they were detained nearly a week by bad weather, and in the meantime the NC-4, flying from Chatham *via* Halifax, rejoined her sister planes.

About 6.15 p. m. on May 16 the three planes left together on the long "jump" to the Azores. Flying not far apart, but independently, through the night, as they were nearing the Azores they ran into a thick fog, which they could neither get under nor surmount. Finally the NC-4 managed to get above the fog and arrived at Horta, the first stop in the Azores, 15 hr. and 13 min. after leaving Trepassey. The NC-1 descended at a point about 45 miles from Flores, and after being

beaten about by the waves for five hours, the crew were rescued by the Steamship *Ionia*. All efforts to tow or salvage the plane failed, and she sank while destroyers were attempting to save her. The NC-3 battled with the heavy seas and high winds for two and a half days but, though badly damaged, managed to reach Ponta Delgada the afternoon of May 19, having been on the water 53 hr. and taxied and drifted 209 miles in the effort to reach port.

On May 20 the NC-4 flew from Horta to Ponta Delgada, and waited there several days for favorable weather. The morning of May 27 she departed for Lisbon, arriving at the Portuguese capital that evening, completing the first flight across the Atlantic. On May 30 she started for England but, a slight leak developing, descended in the Mondego River, near Figuera, and, after repairs, flew to Ferrol, Spain, where she remained for the night. Proceeding the next morning, she flew across the Bay of Biscay up the coast of France, circling over Brest, and arrived at Plymouth, England, on May 31 at 2.26 p. m. local time. The total time in the air was 53 hr. 58 min. (See also XX, *Aeronautics*.)

The C-5, a U. S. Navy non-rigid dirigible, in May made a new world's record for airships of her type, flying from Montauk, L. I., to St. John's, Newfoundland, 1,050 nautical miles, in 25 hr. 50 min. Shortly after her arrival she was caught in a sudden gale, and in spite of all efforts to hold her or deflate the bag, she was swept out to sea and disappeared. Her initial flight indicated that the C-5 could successfully have negotiated the voyage from Newfoundland to Ireland, but the loss of the dirigible caused the abandonment of this plan. Another record for non-rigid dirigibles was made on April 25 by a twin-motored flying boat of the F-5 type, which made a non-stop flight of 20 hr. 10 min., covering 1,250 nautical miles.

The R-34, a British rigid dirigible of the largest type, in July made the first round trip across the Atlantic. Arriving at Mineola, N. Y., on July 6, she left on the return voyage on July 9. Lieut.-Commander Zachary Landdowne, U. S. N., was a passenger on the westward trip. No rigid airships

XI. MILITARY AND NAVAL

of the same huge size as the R-34 having been built in this country, the Navy has purchased from the British one of the same type, but larger, and has contracted for another, still larger, to be built in this country. (See also XX, *Aeronautics*.)

To accommodate these airships and others to be built, the Navy is erecting at Lakehurst, N. J., a hangar larger than any now in existence—804 ft. long, 318 ft. wide, and 200 ft. high, with a structural-steel frame on the three-hinged arch principle, each arch supported on towers 62 ft. high. The entrance door is double, consisting of two leaves each 177 ft. high and 136 ft. wide. This will accommodate airships far larger than any now built and will be equipped for construction as well as storage. The Naval Aircraft Factory at Philadelphia, which during the war produced \$10,000,000 worth of flying boats, is being used not only for construction, but also for development of new types of aircraft.

Secretary Daniels in his annual report takes strong ground against the establishment of a separate Air Service as a department of the Government, contending that naval aviation is an integral part of the Navy, that its aircraft must be able to operate with our fleets and accompany our warships wherever they may sail, and that special types and special training are required for naval aviation (see also *The Army, supra*). Naval Aviation in the war period grew to a force of nearly 50,000, including 2,835 officers and 32,873 men of the Naval Flying Corps, 282 officers and 2,180 men in the Marine Section, and 10,579 men of other ratings assigned to aviation duty. Twenty-seven stations were established in England, Ireland, France, and Italy, and there were 1,212 officers and 17,524 men in European service. All the European stations were demobilized early in the year, and most of the 24 stations in the United States and Canada were closed. The peace programme calls for six heavier-than-air patrol stations in the United States, one in the Panama Canal Zone, and two fleet aviation detachments, one for the Atlantic, and one for the Pacific fleet. A total personnel of 5,000 is provided for. Demobilization of personnel was so rapid that in

April there were but 1,873 officers and 15,091 men in the Corps, and the low-water mark, 701 officers and 1,217 men, was reached in July. Since that time there has been a gradual increase, and recruiting and training are proceeding to bring the personnel up to the number authorized.

Demobilization of Personnel.—At its highest point the total strength of the Navy was 532,921 officers and men, as follows:

	Officers	Enlisted Men
Regulars	10,590	215,672
Reserves	21,618	278,659
Coast Guard	688	5,694
Total	32,896	500,025

The figures for reserves include only those in active service. Some 9,000 reservists who were in training at officer material schools and other institutions were allowed to complete their courses and were then commissioned and placed on inactive service.

Although thousands of men were necessarily retained to man and operate troopships and cargo transports, as well as men-of-war, demobilization was rapid. By July 1 the total strength had been reduced to 272,403, less than 100,000 reserves remaining. By Sept. 1 the total had been reduced to 193,356, there remaining of the reserves only 4,670 officers and 34,542 enlisted men. The Coast Guard, with its force of 661 officers and 4,311 enlisted men, was transferred by Executive order on Aug. 28 to the Treasury Department, this service having operated under the Navy only during the war period. By Nov. 1 but 1,809 reserve officers and 4,709 men remained, and practically all these have since been put on inactive status. The strength of the Navy on Nov. 1, 1919, was 132,358, as follows: Officers: regulars, 10,193; reserves, 1,809; enlisted men: regulars, 115,647; reserves, 4,709.

As a matter of fact, owing to new enlistments, the number of discharged has been actually much larger than the figures indicate. The total number discharged from the regular Navy up to Nov. 1 was 125,045, and from the Naval Reserve Force, 286,630.

Recruiting.—Recruiting for the Navy was resumed on Dec. 3, 1918, and in that month there were 1,684 first enlistments and 757 reënlistments. First enlistments during 1919 averaged from 5,000 to 6,000 per month, the total for the ten months ending Oct. 31 being 58,340. In addition there have been 1,989 transfers from the Reserve and 12,005 reënlistments, total, 72,334, and 17,718 extensions of enlistments. Although these newly enlisted men must be trained before they are fully qualified for their duties, and in the interim many naval vessels will be undermanned, Secretary Daniels points out that there are more than twice as many officers and men in the service as there were on Jan. 1, 1917.

The much larger compensation offered in civilian occupations has caused many experienced men, mechanics and seamen, to leave the Navy, and the Department has urged Congress to grant material increases in pay for both officers and men. Legislation to this end was pending in Congress at the end of the year (see also *The Army, supra*; and I, *Congress*). The original bill provided for a flat increase of 30 per cent., but Secretary Daniels favored a fixed increase of 50 per cent. for enlisted men and lesser proportionate amounts for those receiving higher pay.

Naval Education.—The Naval Academy has been enlarged to accommodate more than 2,000 enlisted men, and there were 2,086 midshipmen in attendance at the opening of the autumn session. The full four-year course has been resumed, and there are 709 in the first class, the largest in the history of the Academy. Rear-Adm. A. H. Scales is now the superintendent.

The Naval War College, at Newport, R. I., Adm. Wm. S. Sims, president, has resumed its courses with an enlarged staff and an attendance of 60 officers, with 508 officers taking the correspondence course.

Radio and Naval Communications.—The Navy not only had control of all radio stations in the United States and its possessions during the war, but built a number of new stations and operated a radio system extending over more than half the globe. The

Office of Naval Communications during the fiscal year 1919 handled 71,347,860 words (estimated at an average of 60 words per dispatch) as follows: by high-power radio (trans-Atlantic and continental), 16,215,423; by coastal radio, 1,621,542; by leased wires, Western Union and Postal, 53,500,895. High-power transoceanic stations were erected at Annapolis, Md., San Diego, Cal., Pearl Harbor, Hawaii, and Cavite, P. I., providing for direct transmission with only one relay across the Pacific. Direct communication was maintained with England, France, and Italy, and this was of the highest importance, for had the enemy succeeded in cutting all the cables, wireless telegraphy would have been our only means of quick communication between America and Europe. Since the armistice the naval radio service has transmitted millions of words of official dispatches and thousands of press messages, relieving the overloaded cables. It has also maintained the service with Japan and the Philippines. The Navy, which owned and operated 54 radio stations previous to the war, at various points from the Panama Canal Zone to Alaska, now owns 174 stations five transoceanic, 140 ship-to-shore, 24 radio compass stations, and five at air stations. Of the 59 owned by private individuals, only five are high-power sending stations. Secretary Daniels has urgently recommended that all radio communications be continued under control of the Navy, declaring that unified control is necessary for efficient operation in peace as in war time; he is convinced that the entire system, for commercial as well as official business, can be operated more economically and efficiently by the Navy than by private companies.

Radio compass stations, originally erected to determine the position of enemy submarines at sea, have proved so useful to navigation that additional stations have been erected, and there are now 24 in operation, mainly on the Atlantic coast. By use of radio, these stations can transmit to ships caught in fog or cloudy weather their location, and enable them to proceed with certainty off the coasts and to port, thus adding materially to the safety of navigation.

War Cost of the Navy.—The funds made available for the use of the Navy, mainly by appropriation, during the period from April 1, 1917, to June 30, 1919, amounted to \$3,357,993,878.06. Assuming that the expenditures for the Navy on a peace basis during this period would have continued to increase at the same rate as during the decade from 1907 to 1916, in which time the annual cost of the Navy grew from \$98,392,144.07 to \$152,821,540.67, the total expenditures for the Navy on a peace basis from April 1, 1917, to June 30, 1919, would have been \$375,598,947.77. Deducting this from the total available amount of \$3,357,993,878.06 shows that the additional amount of money required by the Navy on account of the war was \$2,982,394,930.29.

Marine Corps.—The Fourth Brigade of Marines, Brig.-Gen. Wendell C. Neville commanding, which, as a part of the Second Division, A. E. F., was in active service at the front from May, 1918, to the end of hostilities and also served in Germany with the Army of Occupation, returned to America early in August, and was mustered out at Quantico, Va. The Thirteenth Regiment, commanded by Brig.-Gen. Smedley D. Butler, which was stationed at Camp Pontanezen, Brest, returned from France, and was mustered out at Hampton Roads, Va. The Marine expeditionary units in Haiti and Santo Domingo continued their duty, suppressing banditry and enforcing law and order in those republics.

The following casualties were sustained by the Marine Brigade in France between March 15 and Nov. 11, 1918: killed, 55 officers and 1,459 men; died of wounds, 25 officers and 753 men; missing, 161 men; wounded (all classes), 252 officers and 8,277 men; gassed, 24 officers and 962 men; total casualties, 356 officers and 11,612 men. The Marine Corps at its highest war strength reached a total of 75,044, including: regulars: 1,678 officers, 257 warrant officers, 65,666 enlisted men; reserves: 452 officers, 31 warrant officers, 6,704 enlisted men. By July 1 the total strength had been reduced to 48,570, and by Sept. 1 to 29,222. On Nov. 13 the personnel was: officers, 1,

211; enlisted men, 17,445; reserves, 295; total, 18,951. Recruiting has been resumed in the effort to bring the Corps up to its full authorized enlisted strength of 27,400, and the Navy Department recommends that its strength be continued at approximately this figure, which is 20 per cent. of the authorized enlisted strength.

Administration.—On Sept. 25 Adm. Wm. S. Benson, reaching the age of retirement, retired as Chief of Naval Operations and later was succeeded by Adm. Robert E. Coontz. Rear-Adm. Victor Blue, who on Jan. 1, 1919, had become Chief of the Bureau of Navigation, retired on account of ill health, and was succeeded in the autumn by Rear-Adm. Thomas M. Washington, Capt. R. H. Leigh being in the interim acting chief of the Bureau. Rear-Adm. A. P. Niblack became Director of Naval Intelligence, succeeding Rear-Adm. Roger Welles, who took command of a squadron of the Atlantic Fleet. Rear-Adm. A. H. Scales became Superintendent of the Naval Academy, succeeding Rear-Adm. Edward W. Eberle, who commands a squadron of the Atlantic Fleet. Adm. Wm. S. Sims on his return from Europe became president of the Naval War College, and was succeeded by Rear-Adm. Harry S. Knapp as commander of U. S. Naval Forces Operating in European Waters.

Rear-Adm. W. H. G. Bullard succeeded Capt. D. W. Todd as Chief of Naval Communications. Upon the return home of Adm. Henry B. Wilson, now commander-in-chief of the Atlantic Fleet, Rear-Adm. A. S. Halsey took command of U. S. Naval forces operating in French Waters. Rear-Adm. Walter Andrews is in command of U. S. Naval forces in the Adriatic, and Rear-Adm. Mark Bristol is in command of our ships at Constantinople and is U. S. High Commissioner in Turkey.

The name of the "Pay Corps" has been changed to "Supply Corps," and Secretary Daniels has recommended that the Bureau of Steam Engineering be called the "Bureau of Engineering," and the Bureau of Navigation the "Personnel Bureau," as more nearly descriptive of their duties.

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

S. S. HUEBNER

BUSINESS CONDITIONS IN 1919

Another Year of Extremes.—The 1917 and 1918 issues of the YEAR BOOK described the business conditions of those years as representing great extremes, some business lines enjoying an extraordinary boom, while others experienced the utmost depression. With the signing of the armistice radical changes might have been expected. But, in the main, the momentum created by the war, toward either favorable or unfavorable conditions depending upon the character of the business in question, continues to the present. In most instances, indeed, the record is even more extreme in 1919 than in the preceding year. In a number of cases very unfavorable conditions, due to war restrictions or prohibitions, were suddenly converted into a record-breaking showing in the opposite direction by the removal of such restrictions and the necessity of supplying the nation with certain wants that had for a number of years been allowed to remain unfilled because, as non-essential for the prosecution of the war, they had been obliged to give way to the production of necessary goods. As a whole the year 1919 may be regarded as very abnormal and as probably the most extraordinary business year on record since the Civil War.

A brief *résumé* of the leading indices of trade will serve to show these extremes. Bank clearings exceeded those of 1918 by 23.4 per cent., despite the fact that that year's record exceeded the clearings of 1917 by 17.5 per cent., and that 1917, in turn, exceeded 1916 by 30 per cent. and showed nearly double the total for 1914. Railroad gross earnings, as judged by the 10 largest systems, were \$14,150 per mile, or 7.2 per cent. greater than

in 1918. This figure compares with only \$13,192 in 1918, \$11,089 in 1917, and \$7,944 in 1915. Business failures were lower by 41.7 per cent. in number and 23.5 per cent. in the amount of liabilities, and exceeded all previous solvency records when we take into account the enormous increase in the number of new firms and corporations. The percentages mentioned are especially noteworthy when we reflect that 1918 showed, respectively, decreases of 25 per cent. and 14 per cent. as compared with 1917. Exports of merchandise broke all records, the gain over the fiscal year 1918 being the enormous amount of 1,305 millions. Imports, although exceeding all previous records in 1918 by 287 millions, made a new record in 1919 by another 150 millions.

For nearly all other business barometers the first nine months gave evidence that the full year would be a record-breaker. Building operations showed an increase of 155 per cent. as compared with the corresponding months of 1918, and the total for the first nine months was equal to $2\frac{1}{2}$ times the operations for the whole of the preceding year. New incorporations, owing largely to removal of governmental restrictions on the flow of capital, amounted to nearly four times the total record for the corresponding months of 1918 and far exceeded anything on record. New securities issued also exceeded those for the same months of 1918 by nearly 115 per cent. The volume of stock transactions on the New York Stock Exchange increased over 131 per cent. in the first nine months, and the total for the entire year greatly exceeded anything in the history of this market. Similarly, bond sales on this

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

Exchange occurred at a rate nearly twice that recorded for 1918. Moreover, although everyone expected a decline in commodity prices, Bradstreet's index number for October of 1919 exceeded the corresponding number for 1918 by 2.8 per cent. The continuance of the enormously high level in prices has necessarily affected disastrously the net earnings of numerous industries, such as railroads, express companies, telegraph and telephone companies, and other public-service corporations, which find it difficult, if not impossible, to raise the price of their service to correspond with the increased cost of operation. In conjunction with all the prosperity indicated by the foregoing barometers, money rates also showed a tendency to increase, the average for call loans in New York during October amounting to nine per cent., and the rate rising at one time to 30 per cent.

The number of business barometers adversely affected is extremely limited, and where such a showing is presented, the cause is found in conditions which grew out of the war and which were bound to produce unfavorable results. Investment bonds, using the Babson figures, were quoted at only 79.5 for October, 1919, as compared with 80.7 for October, 1918, 84.0 for October, 1917, and 91.6 for October, 1916. Babson's list of investment stocks likewise stood at only 109.9 for October of 1919, as compared with 113.5 for October, 1917, and 143.9 for October, 1916. It is but natural that high money rates and the inability of many classes of corporations to obtain materials except at almost prohibitive prices should thus be reflected by low prices for securities the interest or dividends on which are limited. In the iron, steel, and copper industries, as will be explained later, there was a substantial decrease in production as well as in price obtained, but this decline is only the natural result of the cessation of war and the consequent decrease in the demand for steel and copper products.

Statistics.—Following the plan adopted in previous issues of the YEAR BOOK, we present a series of tables which summarize the business conditions of 1919 in comparison with those of 1918 and earlier years, as

shown by those leading indices¹ which are generally accepted as the truest barometers of industry, trade, and finance. The tables relating to stock-market activity, including summaries of "Shares of Stocks and Bonds Sold," "Average Security Prices," and "New Securities Listed," indicate the activity or lack of activity during the year in the security market and the condition of the investment demand. The tables relating to "Loans and Deposits of the New York Clearing House Banks" and "Domestic and Foreign Money Rates" furnish an idea of the conditions surrounding the money market during 1919; and the tables on "Bank Clearings," "Foreign Trade," "Cereal Production," "Railroad Earnings," "Production of Iron and Copper," "Building Construction," and "Business Failures" serve to furnish a view of the year's activity in mercantile and manufacturing lines. For purposes of comparison, the figures are given by months for the years 1919 and 1918, and to make possible a further comparison, the totals for the several items, wherever possible, are given also for 1917 and 1916.

AGRICULTURE

Crop Production.—The grain-crop statistics of the United States for 1918, as indicated by the October estimate of the Department of Agriculture, present a favorable showing on the whole, although the total output, with the exception of corn, is somewhat short of the record crops of 1918 and 1917. Considering the five leading cereals, wheat, corn, oats, barley, and rye, the estimated yield for 1919, as indicated by the accompanying table, shows a total of 5,321,000,000 bush., a decrease of 63,000,000 bush., or less than 1.1 per cent., as compared with 1918. But this slight decrease

¹ The author is indebted for the statistical data presented in most of the following tables to the monthly compilations prepared from authentic sources by Roger W. Babson, and issued periodically in "Babson's Desk Sheet of Tables on Barometric Figures and Business Conditions." In the collection of data much assistance has been obtained also from the excellent compilations and reviews published periodically by the *Commercial and Financial Chronicle*.

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

CEREAL PRODUCTION (000,000 omitted)

Production (bushels)	1919 ¹	1918	1917	1916	1915	Previous Records
Winter wheat	715	558	413	455	655	685 (1914)
Spring wheat	203	359	224	153	357	359 (1918)
Corn	2,900	2,583	3,065	2,718	3,055	3,065 (1917)
Oats	1,220	1,538	1,593	1,230	1,540	1,593 (1917)
Barley	198	256	212	184	237	256 (1918)
Rye	85	90	63	42	49	90 (1918)
Total	5,321	5,384	5,570	4,782	5,893	6,048

¹ October estimate; the final December estimate is given under XVI, *Statistics of Agriculture*.

must be viewed in the light of the fact that the 1918 and 1917 crops were unusually good. Even comparing the yield of 1919 with the sum total of the previous records of each of these five cereals, the decrease is only 727,000,000 bush.

Although the wheat crop estimate of 918,000,000 bush. is practically the same as the estimate for 1918, the showing is nevertheless very disappointing compared with earlier predictions, which were for a yield of 1¼ billion bush. This is particularly true because of the strenuous efforts made to increase greatly the yield, and furthermore because of the unusually low quality of the grain in food value. The reduction in crop prospects is traceable to the effects of blight, scab, and black rust. The winter-wheat crop indicates an increase of 28.1 per cent., the estimated yield amounting to 715,000,000 bush., as compared with 558,000,000 bush. in 1918, 413,000,000 bush. in 1916, and a five-year average of 555,000,000 bush. In spring wheat, however, the showing is as dismal as the winter-wheat showing is excellent. The October estimate places the yield at only 203,000,000 bush., as compared with 359,000,000 bush. in 1918 (a decrease of 43.4 per cent.), 224,000,000 bush. in 1917, 357,000,000 bush. in 1915, and a five-year average (1913-17) of 235,500,000 bush. The 1919 showing is really worse than the figures indicate, because of the unusually low quality of the grain for food purposes. The deterioration in the wheat crop, however, is offset by the unusually good yield of corn. The October estimate indicates a yield of 2,900,000,000 bush., an increase of 323,000,000 bush.

as compared with the actual yield of 1918. The 1919 yield of 2,900,000,000 bush. is 318,000,000 bush. in excess of the five-year average for 1913-17.

Most of the remaining important agricultural crops also present a falling off as compared with 1918 and 1917. The yield of oats is placed at 1,219,521,000 bush., or 20 per cent. under the December estimate of 1918 and 112,000,000 bush. under the five-year average for 1913-17. The barley crop is estimated at 198,298,000 bush., or 22.7 per cent. under the December estimate for 1918 and approximately 1,000,000 bush. under the five-year average for 1913-17. As regards the yield of the remaining eight most important crops, the showing as compared with 1918 is as follows: rye, \$4,552,000 bush., a decrease of 6.2 per cent.; white potatoes, 350,070,000 bush.; a decline of 12.5 per cent.; tobacco, 1,278,062,000 lb., a decline of 4.6 per cent.; flaxseed, 10,652,000 bush., a decline of 27 per cent.; and apples, 156,721,000 bush., a decline of 7.6 per cent. Only in the case of buckwheat, sweet potatoes, rice, and hay, excluding from consideration certain minor products, does the 1919 yield indicate an increase as compared with 1918, the increase for buckwheat being 17 per cent.; for sweet potatoes, 15.1 per cent.; for rice, 9.5 per cent.; and for hay, 13.3 per cent. (See also XVI, *Agriculture*.)

Cotton Production.—The cotton yield will prove very disappointing, especially in view of the bad showing for the preceding three years. In fact, judging from the October estimate of the Department of Agriculture, the estimated yield for 1919 is as low as the mark for 1918, the lowest

on record. The Government's October estimate places the condition of the cotton crop on Sept. 25 at 54.4 per cent. of normal, as compared with 54.4 per cent. on the corresponding date of 1918, 60.4 per cent in 1917, 56.3 per cent. in 1916, and 63.5 per cent. the average on Sept. 25 of the past 10 years. The condition of 54.4 per cent. forecasts a yield per acre in 1919 of only 158 lb. and a total production of about 10,696,000 bales. This yield will compare with 12,040,532 bales in 1918, 11,302,375 bales in 1917, 11,449,930 bales in 1916, and 12,847,000 bales for the five-year (1913-17) average. It is largely because of this small yield, following a number of other poor seasons, that the price of cotton has remained at the high level that prevailed during all of 1918. On Oct. 1 the country price of spot cotton stood at 31.3 cents, as compared with 31.8 cents for the corresponding date in 1918 and 14.2 cents for the five-year (1913-17) average.

Prices of Staple Agricultural Products.—Owing to the general tendency towards price inflation and the continued export demand to Europe, current prices of leading agricultural products have continued to remain during the whole of 1919 at the same high level discussed for the years 1918 and 1917. The following table of farm prices prevailing on Oct. 1, as published by the Department of Agriculture, shows that the maintenance of a high level in prices has been general; the prices are per bushel except when otherwise indicated:

	1919	1918	1917	Five-Year Average 1913-1917
Wheat	\$2.096	\$2.058	\$2.006	\$1.198
Corn	1.539	1.595	1.751	0.963
Oats	0.684	0.710	0.623	0.448
Barley	1.153	0.955	1.139	0.692
Rye	1.358	1.540	1.698	0.999
Buckwheat	1.620	1.800	1.544	0.943
Potatoes:				
White ...	1.642	1.436	1.221	0.843
Sweet ...	1.547	1.606	1.161	0.887
Flaxseed ...	4.382	3.809	3.085	1.812
Cotton (lb.)	0.313	0.318	0.233	0.142
Apples	1.711	1.325	1.068	0.783
Hay (ton) ..	19.79	18.45	13.830	11.14

Thus it appears that the total price for a bushel of each of the nine leading farm products, corn, wheat, oats, barley, hay, buckwheat, white pota-

toes, sweet potatoes and flaxseed, increased nearly 3.3 per cent. as compared with 1918. But as compared with the five-year average, 1913-1917, the 1919 cost shows an advance of 82 per cent. As regards cotton the price was practically the same on Oct. 1, 1919, as for the same date in 1918; for hay and apples the gains in prices, as compared with 1918, were, respectively, 7.2 and 28.6 per cent. But here it should be noted that the country price for these three crops had increased during 1918, as compared with 1917, respectively, by 36.5 per cent., 25 per cent., and 33.4 per cent. (See also XVI, *Agriculture*, and *Statistics of Agriculture*.)

IRON AND STEEL TRADE

Iron Production.—As was pointed out in the YEAR BOOK for 1918 (p. 358), the cancellation of large Government contracts and the contraction of unfilled-order figures indicated that the unprecedented prosperity in the iron and steel business, as reported in the three preceding issues of the YEAR BOOK, had about reached its maximum, and that a decline was soon to be experienced. The 1919 figures give unmistakable evidence of such a decline. For the month of September, the latest for which final figures are available, pig-iron production amounted to only 2,442,000 tons, as compared with 3,418,000 for the corresponding month of 1918; in fact, during the last 10 months of 1918 every month showed production in excess of 3,200,000 tons. For the first nine months of 1919 total production amounted to only 23,647,000 tons, as compared with 28,232,000 tons for the corresponding period in 1918 (a decline of over 16 per cent.), 28,794,000 tons in 1917, and 29,043,000 tons in 1916. It should be noted that the 1919 production for the first nine months is approximately the same as the 23,959,000 tons of production for the first nine months of the pre-war year of 1913. (See also XVII, *Iron and Steel*, and XVIII, *Manufactures*.)

Not only has production declined during the year, but the price for pig-iron has also reached a considerably lower level. In the YEAR BOOK

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

for 1918 (p. 358) it was explained that in 1917 the unprecedented war demand caused prices to rise beyond all reasonable limits, the high price of \$49.90 prevailing during the months of July, August, and September of 1917; that in the fall of 1917, owing to the Government's policy of controlling prices, the level was reduced to \$35.90; and that this price, although representing a radical drop, nevertheless exceeded the price prevailing at the beginning of 1915 by nearly 200 per cent. For all of 1918 the price averaged \$36.52. As compared with this figure, the average price for the first nine months of 1919 was only \$31.39, a decline of 14 per cent.

The Steel Trade.—The volume of the steel business is best indicated by the record of unfilled orders of the U. S. Steel Corporation. Such orders, usually considered an excellent index of trade, show an average of only 5,563,764 tons for the first nine months of 1919, as compared with 8,862,426 tons for the corresponding months of 1918, 11,255,561 tons in 1917, 9,334,119 tons in 1916, and 4,567,705 tons in 1915. In other words, the unfilled orders of the U. S. Steel Corporation for the first nine months of 1919 show a decline of over 37 per cent. as compared with the corresponding period of 1918, thus furnishing evidence of the aforementioned prospective contraction in the output of the steel industry. It should be noted that present figures are back approximately to those prevailing in the years just preceding the war. The highest record of unfilled orders in the war boom was reached in April, 1917, when the average for the month stood at 12,183,083 tons. The totals of unfilled orders by months for the last three years are as follows:

	1917	1918	1919
January ..	\$11,474,054	\$9,477,853	\$6,684,268
February ..	11,576,697	9,288,453	6,010,787
March	11,711,644	9,056,404	5,430,572
April	12,183,083	8,741,882	4,800,685
May	11,886,591	8,327,623	4,282,310
June	11,383,287	8,918,866	4,892,855
July	10,844,164	8,883,801	5,578,661
August ...	10,407,049	8,759,042	6,109,103
September ..	9,833,477	8,297,905	6,284,638
October	9,009,673	8,353,293	6,472,668
November ..	8,897,106	8,124,663	7,128,330
December ..	9,381,718	7,379,152	8,265,366

PRODUCTION OF IRON AND COPPER

	Pig Iron, tons (000 omitted)		Copper, pounds (000 omitted)	
	1918	1919	1918	1919
January	2,412	3,302	165,000	136,000
February	2,319	2,940	160,000	112,000
March	3,213	3,050	185,000	102,000
April	3,288	2,478	163,000	99,000
May	3,446	2,108	181,000	93,000
June	3,324	2,115	166,000	96,000
July	3,421	2,429	159,000	100,000
August	3,390	2,743	165,000	108,000
September	3,418	2,448	157,000	110,000
October	3,487	1,863	168,000	115,143
November	3,354	2,392	159,000	117,290
December	3,434	2,633	161,000	.....

THE COPPER TRADE

Production and Price.—The decline noted in the iron and steel industry during the year was duplicated in the copper industry. The cause is again attributable to the marked falling off in the use of the metal for war purposes. The total production in the United States for the first nine months of 1919 was 956,000,000 lb., as compared with 1,344,000,000 lb. in 1918, 1,324,000,000 lb. in 1917, and 1,506,000,000 lb. in 1916.

Along with the falling off in production there also occurred a marked drop in the price of the metal. During 1918 the average price for electrolytic copper at New York was 24.75 cents. The fixed price, however, terminated at the close of 1918, and as a result the average price for January, 1919, was only 20 cents. Subsequently the price continued to recede until for March the average was reported at only 15 cents. Then followed a gradual and continuous increase until an average price of 21.95 cents was reached in September. For the entire first nine months of 1919, however, the price averaged only 18.43 cents per pound, as compared with 24.33 cents for the corresponding period in 1918, 28.40 cents in 1917, and 26.30 cents in 1916.

Copper Stocks.—The decline in production and price has been accompanied by an unfavorable effect upon the quotations of leading copper shares. Excessive taxation, however, has also worked its adverse influence. In fact, as pointed out in the last issue, the security market tends to

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

discount future business conditions, and consequently the real decline occurred in 1917 and 1918. Since that time copper shares have continued to sell at a comparatively low level. For the month of October, 1919, the price of Babson's list of 20 active and representative copper shares averaged 42.5, as compared with an average of 41.5 for the same month in 1918, 43.4 in 1917, 55.5 in 1916, and 53.3 in 1915.

FOREIGN TRADE

Volume of Foreign Trade.—Exports for the fiscal year ending June 30, 1919, greatly exceeded any previous record in the history of the United States, the gain over 1917-18 being the stupendous sum of \$1,305,000,000. Imports, on the other hand, established a new high record by 150 millions, and 1917-18, it should be recalled, also established a record by 287 millions. This remarkable foreign-trade record may be accounted for partly by the needs of devastated Europe, partly by the removal of prohibitions placed upon the shipment of various important classes of articles and the lifting of serious restrictions placed upon the movement of others regarded as non-essential to the conduct of the war, but mainly to a further increase in the price of commodities.

Exports of merchandise during the fiscal year 1919 amounted to \$7,224,744,785, against \$5,919,711,371 in 1917-18, \$6,290,048,000 in 1916-17, and only \$2,364,579,148 in 1913-14, the year before the beginning of the European War. As already indicated, the 1919 return, expressed in terms of value, is \$1,305,000,000 over that of the preceding year and \$935,000,000 in excess of the record-breaking year of 1916-17. It is over three times the total exports of the fiscal year prior to the commencement of the war. Imports, on the other hand, show a considerable increase over the large gain of the preceding record-breaking year. The total for the fiscal year 1919 amounted to \$3,095,873,104, against \$2,945,655,403 in 1917-18 (an increase of slightly over five per cent.), \$2,659,355,185 in 1916-17, and \$1,894,000,000 in the year prior to the

commencement of hostilities. (See also XIX, *External Commerce*.)

The net balance of trade in our favor amounted to \$4,128,871,681 in 1919, against \$2,974,055,968 in the preceding year, \$470,500,000 in the pre-war year of 1913-14, and a record balance of trade in pre-war days of \$666,431,000 in the fiscal year 1908. It is also worthy of note that since the war started, our balance of exports has amounted to the stupendous total of 14¾ billions, a situation made possible only through the billions loaned by this country to the Allies (see XIII, *Public Finance*).

Since the close of the fiscal year our foreign trade returns have continued to show the same enormous volume. For the three months of July, August, and September 1919 exports totalled \$1,809,500,000. But the balance of trade seems to be shrinking, owing to the enormous increase in imports. During July to September of 1919 imports aggregated nearly \$1,087,500,000. September showed total imports of over 435 millions, or 113 millions in excess of any month in any fiscal year during the entire five years of the Great War; the July and August records are, respectively, 344 and 308 millions.

Effect of War Conditions.—A detailed analysis of our foreign-trade returns for the last fiscal year reveals four main features, all emphasizing the importance and continuation of war conditions. The first relates to the continued heavy movement of traffic to Great Britain, France, Italy, Belgium, Sweden, Norway, Holland, and Denmark, the absence of traffic to the "Central European countries," and the decline of exports to Russia, the shipments to the latter country for 11 months being only 37 millions, as compared with 151 millions during 1917-18 and 524 millions in 1916-17.

But although the traffic to leading European countries has remained substantially the same, it is important to note that a very appreciable increase occurred in our exports to certain markets that in pre-war days played a relatively unimportant part in our commerce. Here again conditions growing out of the war unquestionably constituted the chief cause; yet the steady increase in this par-

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

FOREIGN TRADE

	Imports		Exports		Balance of Trade	
	1918	1919	1918	1919	1918	1919
January	233,942,081	212,992,641	504,797,306	622,552,783	270,855,225	409,560,139
February	207,715,540	235,124,274	411,361,970	585,097,012	203,646,430	349,972,738
March	242,162,017	267,696,289	522,960,238	608,141,648	280,738,221	335,545,359
April	278,981,327	272,956,949	500,442,906	714,800,137	221,461,579	441,843,188
May	322,852,898	328,925,593	550,924,791	604,958,843	228,071,893	275,474,382
June	260,350,071	292,915,543	483,799,399	928,365,567	23,449,328	635,450,024
July	241,877,758	343,999,609	507,467,769	570,082,915	265,590,011	226,083,306
August	273,002,914	308,010,460	527,357,034	646,279,614	254,011,002	338,269,154
September	261,668,614	435,446,652	550,295,994	596,534,841	288,727,350	161,033,723
October	246,764,906	401,873,666	501,860,550	740,921,163	255,095,614	311,710,086
November	251,008,037	429,211,077	522,236,594	631,910,046	271,228,557	230,036,380
December	210,886,517	380,710,323	565,886,112	681,715,999	354,999,595	301,005,676

ticular traffic may well arouse the hope that if we follow a proper course a large share may be retained and extended in the years to come. To quote the *Commercial and Financial Chronicle's* review:

It is gratifying to state that there was a further satisfactory increase in outward trade with countries with which the war enabled us to strengthen our business relations. For the 11 months for which details are available we note that the shipments of goods to Cuba, which had risen from 68½ millions in 1914-15 to 218 millions in 1917-18, dropped to 210 millions in 1918-19, the decline having been mainly in meat and dairy products, which having appreciated largely in price, demand was checked. But the outflow to South America advanced from 282½ millions to 357 millions; China, from 47 millions to 76 millions; East India, 64 millions to 93 millions; Japan, 252 millions to 296 millions; Oceania, 124 millions to 187 millions; and Africa, 49 millions to 77 millions. Obviously these gains are to be ascribed in great measure to higher prices, but they nevertheless accrued to our benefit.

Third, the increase in exports and imports was again shared quite generally by the same leading groups of commodities that appeared most prominently in the report for 1918 (*A. Y. B.*, 1918, p. 361). Exports of breadstuffs increased during the fiscal year by 323 millions over the preceding year; meat and dairy products, by 488 millions; cotton, 198 millions; mineral oils, 47 millions; leaf tobacco, 103 millions; cotton manufactures, 52 millions; leather and manufactures, 50½ millions; and fruit, 30 millions. In the list of substantial decreases may be mentioned; explosives, with a decline of 242 millions; copper, 113 millions; iron and steel manufactures (which showed an increase of 40 million during 1918), 98 millions;

brass, 39 millions; and chemicals, 30 millions. With reference to imports the largest increases were reported in coffee, sugar, raw silk, tobacco and manufactures, wool, and various crude articles for use in manufacturing in this country.

Last, attention should again be called to the extent to which the huge total of exports and imports is explainable by the increase in prices as contrasted with the actual volume of commodities moved (see also XIX, *External Commerce*). A detailed analysis would indicate that while the Government's figures for the last fiscal year show an enormous increase, the volume of goods actually shipped was but slightly greater. To quote the excellent summary in the *Commercial and Financial Chronicle* on this point:

It does not require extensive analysis of the data to find that very much the greater part of the enormous gain in exports is to be ascribed to higher prices. As an indication of this we note that raw cotton exports in 1912-13, while nearly double those of 1918-19, represented a value 200 million dollars less, and the same is true in lesser degree of many other important articles. It will suffice to state that prices of cotton cloth, canned beef, cottonseed oil, paraffin, and some minor articles are now about three times those ruling in 1912-13; the general run of articles in the iron and steel schedules are more than double. Cotton, apples, fresh and pickled beef, oleo oil, bacon, hams, lard, butter, rosin, cottonseed cake, lubricating oil, naphtha, leaf tobacco, wheat, flour, corn, gunpowder, hides, soleleather, are about in the same category; and cheese, condensed milk, turpentine, crude oil, illuminating oil, coal, and sugar show noteworthy advances. The quantitative exports in 1912-13 of the few articles specifically mentioned above figured upon the basis of the prices ruling in 1918-19 would show an appreciation in value of approximately

2,100 million dollars, or nearly one-half the total gain in values in the interval. It is, therefore, highly probable that a complete analysis would show the quantitative difference between the two years to be very slight.

The gain of 1,305 million dollars in exports by comparison with 1917-18 is due in marked degree if not wholly to the higher prices obtained. We note that with cotton exports for the 12 months ended June 30 showing a quantitative increase of only about 18 per cent., the value of the outflow was 30 per cent. greater than in 1917-18; similarly a drop in paraffin on the one side of less than 2-10 of one per cent. is accompanied by an augmentation on the other of 40 per cent.; cotton cloth for the 11 months, 20 per cent. under and 25½ per cent. over; rosin, 17 per cent. below and 44 per cent. above; twine, 10¼ per cent. smaller and 12 per cent. greater; and pickled beef, 26 per cent. less with values 10 per cent. more. And many other articles in the same category could be mentioned. . . . In the merchandise imports for the 12 months high prices were, of course, also an important element in swelling values. Indeed, the gain of 150 millions over 1917-18 is much more than accounted for by the rise in prices of a comparatively few articles. The advance in the price of coffee accounts for 42 million dollars increase in the 11 months to May 31; sugar, 31 millions; raw silk, 22 millions; tin, 16 millions; and tobacco and manufactures, 15 millions; or 126 million dollars in these five articles, or nine millions more than the aggregate gain in value of all articles imported in the 11 month period. Accordingly price alone may be said to be responsible for the 1918-19 record total.

BUILDING OPERATIONS

New Construction.—The 1919 figures of new building construction as judged by the permits issued for 20 leading cities, as compiled in Babson's "Desk Sheet," present a complete reversal of the extreme inactivity in this field described in the issues of the YEAR BOOK for 1918 (p. 362) and 1917 (p. 305). For the first nine months of 1919 such operations in these 20 cities aggregated \$513,373,082, as compared with only \$201,830,973 for the corresponding period in 1918, \$334,018,459 in 1917 and \$476,439,950 for 1916. The figure for 1919 thus shows an increase of 155 per cent. as compared with 1918. In fact, the total for the first nine months of the year is equal to 2½ times the total for the whole of 1918. During the year the figures increased progressively as the year drew toward a close. For September the operations in the

BUILDING CONSTRUCTION (20 Leading Cities)

	1918	1919
January	\$21,156,558	\$13,351,085
February	17,315,219	20,716,901
March	19,048,915	32,763,579
April	28,554,802	49,494,212
May	25,911,866	63,956,507
June	24,316,727	77,823,908
July	24,566,688	75,938,254
August	22,498,580	95,455,301
September ...	18,461,618	83,873,335
October	11,803,976	86,209,667
November ...	8,102,283	85,296,828
December	8,462,349	85,183,119

20 leading cities totalled \$83,873,335, or nearly 6½ times the figure for January of the year. The complete change in the situation is due partly to an increased valuation of construction work, but also to a removal or mitigation of various impediments existing in 1918, particularly the acute shortage of labor, the congested condition of the railroads, the precedence that war work had over work for civilians, and the curtailment of many building operations not regarded as absolutely necessary by the War Industries Board. The latter factor especially proved very effective, since the Board was enabled to enforce its rulings through control of priorities and pledges secured from manufacturers not to supply material for new unauthorized projects.

The *Commercial and Financial Chronicle's* compilation of building operations is even more extensive, since it covers 160 cities, representing all sections of the country. For the month of September, 1919, this compilation indicates a total of contemplated expenditures of 140 millions, as compared with only 36 millions for the same month in 1918 and 54 millions in 1917. For all of the first nine months the total exceeded 886 millions, as compared with only 373 millions for the corresponding months in 1918. The remarkable change in this particular field is well described by the *Chronicle* in the following summary:

The returns of building operations for September, 1919, from 160 cities furnish a total of contemplated expenditure of \$140,149,268, this comparing with only \$36,011,593 in September, 1918, and 54½ millions in 1917. . . . Heavy percentages of increase are exhibited at nearly all important cities as well as hosts of

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

BUSINESS FAILURES

(Average of Dun and Bradstreet as per Babson's Reports)

	Liabilities		Number		Totals for Year	Liabilities	Number
	1918	1919	1918	1919			
January	\$17,954,159	\$11,658,974	1,197	622	1908	\$259,341,727	14,783
February	12,148,858	13,657,157	949	547	1909	146,763,569	12,430
March	15,107,255	13,835,613	1,018	558	1910	195,223,045	12,109
April	13,410,830	10,265,447	869	503	1911	189,358,591	13,062
May	11,101,168	10,179,525	836	487	1912	202,085,974	14,647
June	9,217,365	8,109,526	771	449	1913	282,232,584	15,596
July	11,329,086	6,718,528	779	432	1914	358,391,742	17,526
August	8,611,410	6,097,059	734	463	1915	294,299,713	20,602
September	16,337,366	8,030,171	666	497	1916	183,526,001	16,745
October	12,481,988	7,111,408	674	469	1917	174,487,234	13,446
November	11,728,826	7,803,129	560	490	1918	150,923,011	9,685
December	11,494,700	6,962,548	625	535	1919	110,429,085	6,052

places of lesser prominence, while the declines to be noted are few in number and of negligible importance.

For the period since Jan. 1 the aggregate is very much larger than a year ago, in fact, the best on record for the period covered, the outlay arranged for reaching \$886,517,419, against 373 millions in 1918 and about 790 millions in 1916, the latter the previous high mark. Greater New York's figures are 170 millions, 48 millions, and 187½ millions, respectively, in the three years, and for the other cities collectively the aggregates are 716½ millions, 325 millions, and 600 millions. Needless to say, all the various groups into which our returns are segregated make an excellent showing for the elapsed portion of 1919, with the Middle West and South standing out most conspicuously in that regard.

BUSINESS FAILURES

A New Solvency Record.—The year 1919 will be a record-breaker as regards a favorable business-failure situation, and the showing is again due to the same reason outlined in the 1918 issue of the YEAR BOOK, namely, active business at extremely high prices which assure large profits in nearly all lines of business endeavor. As regards the small number of insolvencies, the month of June surpassed any month on record. As reported by the *Commercial and Financial Chronicle*, "the exhibit for the first 10 months of 1919 is, as regards number, the best in 38 years, while to find a smaller sum of failed indebtedness we must go back to 1905. The favorable nature of the current showing is apparent when allowance is made for the great expansion in the number of concerns in business."

Number and Liabilities of Failures.

—In 1918 the total number of busi-

ness failures, using Babson's average of the Dun and Bradstreet compilations, amounted to only 9,685, as compared with 13,446 in 1917, 16,745 in 1916, and 20,602 in 1915; and the total liabilities to only \$150,923,011, as compared with 174 millions in 1917, 183½ millions in 1916, and 294 millions in 1915. The first nine months of 1919 show an even more favorable situation. The total number of failures aggregated only 4,558, as compared with 7,821 for the corresponding period of 1918, a decrease of 41.7 per cent. Total liabilities for the nine months aggregated only \$88,552,000, as compared with \$115,217,497 for the corresponding months of 1918, a decline of 23.5 per cent. These decreases are all the more remarkable when we recall that the number of business failures during 1918 showed a decline of 25.1 per cent. as compared with 1917, and the total liabilities a decline of 14.2 per cent. A further analysis of the failures shows the favorable situation in solvency statistics for 1919 to apply to all the main divisions of business—manufactures, commerce, and finance. The excellent present situation is well summarized by the *Commercial and Financial Chronicle* in the following statement:

Messrs. R. G. Dun & Co.'s compilations, which furnish the basis for our deductions, show that the number of mercantile defaults in October this year was but 463 for \$6,871,966, against 660 for \$13,980,306 a year ago, 1,082 and \$12,812,012 in 1917, and 1,240 and \$10,775,654 in 1916. And not only is the general exhibit very satisfactory, but a like situation is observable in all the various branches into which the returns are segregated. Manufacturing lines, for in-

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

RAILROADS GROSS AND NET EARNINGS (Commercial and Financial Chronicle)

Section or Group	GROSS EARNINGS					
	Jan. 1 to Dec. 31		Increase (+) or Decrease (—)			
	1918	1917	Total	Per Cent.		
Group 1 (7 roads), New England ...	\$205,622,692	\$174,714,766	+\$30,907,926	17.69		
Group 2 (34 roads), East and Middle	1,359,478,360	1,093,433,146	+266,045,214	24.33		
Group 3 (28 roads), Middle West ...	602,668,821	486,587,692	+116,081,129	23.89		
Groups 4 and 5 (34 roads), Southern	675,989,747	519,940,480	+156,049,267	30.01		
Groups 6 and 7 (30 roads), Northwest	1,041,146,745	880,531,291	+160,765,454	18.26		
Groups 8 and 9 (49 roads), Southwest	735,281,966	637,351,152	+97,927,814	15.37		
Group 10 (12 roads), Pacific Coast ...	280,570,978	244,455,038	+36,115,940	14.77		
Total (194 roads)	\$4,900,759,309	\$4,036,866,565	+\$863,892,744	21.40		
	MILEAGE		NET EARNINGS			
	1918	1917				
Group No. 1	7,157	7,161	\$20,503,257	\$42,994,362	—\$22,491,105	52.31
Group No. 2	28,724	28,506	182,442,232	271,726,809	—89,284,577	32.86
Group No. 3	21,692	21,731	106,591,441	124,377,422	—17,785,981	14.30
Groups Nos. 4 and 5 .	37,973	38,053	158,207,751	169,161,952	—10,954,201	6.47
Groups Nos. 6 and 7 .	66,125	66,136	204,038,023	276,925,293	—72,887,270	26.32
Groups Nos. 8 and 9 .	54,873	54,621	151,576,280	208,724,487	—57,148,207	27.61
Group No. 10	16,470	16,431	82,435,731	96,656,010	—14,220,279	14.71
Total	233,014	232,639	\$905,794,715	\$1,190,566,335	—\$284,771,620	23.92

stance, report aggregate liabilities of only \$2,303,885 against \$6,744,940 in 1918; traders, \$2,846,047 against \$3,538,936; and brokers, agents, etc., \$1,722,034 against \$3,696,430.

For the 10 months of 1919, the number of defaults at 5,319 is not only the smallest of any year since 1881 but contrasts with no less than 8,729 in 1918 (a number in itself much below the average) and is less than one-half that of 1917. The volume of indebtedness, too, is very light, the aggregate at \$95,813,574 being 41 million dollars under a year ago, 59 millions less than in 1917, and nearly 70 millions below 1916. Manufacturing lines furnished liabilities of \$43,791,609 against \$58,100,249 in 1918 and \$65,768,212 in 1917, and trading indebtedness reached only \$29,983,166 against \$48,987,028 and \$59,346,588, respectively. Among brokers, agents, etc., there is also a marked decrease, \$22,038,799 comparing with \$29,868,053 last year.

RAILROAD EARNINGS

Gross and Net Earnings.—As was the case in 1918, this business barometer again serves to indicate the huge volume of the nation's business and the disastrous effect of rising costs upon industries not in a position to advance materially the price of their services. The *Commercial and Financial Chronicle's* classified compilation of gross and net earnings for 233,133

miles of road, out of a grand total of some 250,000 miles of road obliged to file monthly returns of revenue to the Interstate Commerce Commission, shows that gross earnings for the calendar year 1918 exceeded those of 1917 by the tremendous amount of \$863,892,744, the total increasing from \$4,036,866,565 to \$4,900,759,309, or 21.40 per cent. Such a showing in the gross would seem to leave little to be desired, when we reflect that 1917 represented a tremendous gain over 1916, which, in turn, also greatly exceeded 1915.

These large gross earnings, however, lose their apparent significance when we analyze the expense and net-earnings items. The *Chronicle's* compilation shows an augmentation in operating expenses for the year by the unprecedented sum of \$1,148,664,364 (40.35 per cent.), due mainly to higher wages, but also to a great extent to the enhanced prices of practically all materials and equipment. As a result, we have an increase of 864 millions in the gross converted into an extraordinary reduction in net earnings of \$284,771,620, from \$1,190,566,335 to \$905,794,715, or 23.92 per cent. (See also XIX, *Railroads*.)

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

The reasons for such an extremely unfavorable showing were outlined fully in the last issue (pp. 364-5) and need not be repeated. Suffice it to say that the poor showing cannot be attributed solely to Government operation and control and that the effects of high wages and costly materials have continued to operate during all of 1919. For the first eight months of 1919 Babson's compilation for 10 leading railway systems, representing every section of the country, shows the gross earnings to be \$14,150 per mile, against \$13,192 for the same months of 1918, an increase of nearly 7.2 per cent., \$11,089 for the same months in 1917, \$9,618 in 1916, and \$7,944 in 1915. Net earnings for the first eight months of 1919, however, stand at only \$2,055 per mile, against \$2,441 for the same months in 1918, a decrease of 15.8 per cent., \$3,287 in 1917, \$3,230 in 1916, and \$2,368 in 1915. For the month of September, 1919, the latest for which reports are available, the *Commercial and Financial Chronicle's* compilation shows an increase in the gross earnings for 200 companies reporting to the Interstate Commerce Commission of \$9,252,922, or 1.9 per cent., as compared with September, 1918. Expenses, however, increased by \$28,081,783, or 7.62 per cent., and the net earnings for the month declined \$18,828,861, or 16.08 per cent. The conclusion reached by the *Chronicle* is as follows:

Returns of earnings of the steam railroads of the United States still lack elements of encouragement. In general the character of the returns remains the same as heretofore. Net earnings, speaking of the roads collectively, run substantially behind those of corresponding periods a year ago, though the falling off is no longer so extremely large as in some of the earlier months. The trouble is mainly with the expense accounts, which are still mounting higher notwithstanding comparison is with heavy totals of expenses last year. At the same time gross earnings are running but slightly larger than in 1918 and in the case of many separate systems are showing substantial losses.

BANK CLEARINGS

Total Clearings.—Recent issues of the YEAR BOOK contained accounts of the successive records obtained in bank clearings during the years 1916, 1917, and 1918. The year 1919

furnishes another substantial increase, with new high records for both New York City and for the rest of the nation. For the month of October the *Commercial and Financial Chronicle's* compilation shows total clearings of \$41,777,247,005, as against \$32,064,945,921 during October 1918, an increase of 30 per cent. But the October record of 1918, it should be remembered, represented a gain of 13.5 per cent. over 1917, and October of that year showed a gain of 10.1 per cent. over October, 1916, and 150 per cent. over October, 1914. For the first 10 months of 1919 total clearings aggregated \$335,814,021,482, as against the 1918 high record for the same months of \$272,195,656,059. For the first 10 months, therefore, the year 1919 represented a gain of 23.4 per cent. over 1918, but 1918, in turn, showed a gain of 17.5 per cent. over 1917, and that year showed a gain of 21.4 per cent. over 1916, 70.9 per cent. over 1915, and 93.1 per cent. over 1914.

Clearings Outside New York.—As was the case in 1918, the gain of 1919 was fairly well distributed throughout the country and was not confined mainly to New York City, as is so often the case. Exclusive of New York City, clearings for October, 1919, totalled \$18,063,494,206, a gain of no less than 19.1 per cent. over the corresponding month of 1918; but the October, 1918, showing represented a gain of nearly 21 per cent. over 1917, and this year in turn showed a gain of 25 per cent. over 1916, 69 per cent. over 1915, and 105 per cent. over 1914. For the first 10 months of 1919 gains were especially large at such important and widely distributed centers as Buffalo (an increase of 39.0 per cent.), Cleveland (24.2 per cent.), Detroit (38.7 per cent.), San Francisco (27.5 per cent.), Los Angeles (44.7 per cent.), Spokane (26.9 per cent.), Denver (37.6 per cent.), Galveston (26.1 per cent.), Memphis (51.0 per cent.), and Birmingham (132.2 per cent.). The largest gains are recorded for the middle, Pacific, and southern sections. For the first 10 months clearings showed an increase for the middle states of 27.4 per cent. over the corresponding period of 1918; for the Pacific section, 26.5 per cent.; and for the southern, 17.9 per cent. In the

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

BANK CLEARINGS

	BANK CLEARINGS OUTSIDE OF NEW YORK		TOTAL BANK CLEARINGS	
	1918	1919	1918	1919
January	\$11,819,506,000	\$14,555,171,000	\$26,538,574,000	\$32,415,814,000
February	9,998,003 000	11,598,687,000	22,257,359,000	25,792,839,000
March	12,244,518,000	13,589,784,000	26,084,800,000	30,076,758,000
April	12,391,579,000	13,259,229,000	26,485,086,000	30,592,297,000
May	12,709,536,000	14,277,374,000	28,269,236,000	33,160,272,000
June	12,457,026,000	14,486,589,000	27,314,671,000	34,240,420,000
July	13,243,583,000	15,615,706,000	28,644,739,000	37,490,336,000
August	13,197,733,000	15,154,771,000	28,156,159,000	34,681,872,000
September	12,709,081,000	15,965,991,000	26,372,958,000	35,575,858,000
October	15,150,894,000	18,094,241,000	32,066,173,000	41,807,994,000
November	13,733,734,000	16,724,148,000	29,339,560,000	39,309,900,000
December	14,151,653,000	18,377,677,000	30,810,729,000	42,357,544,000

Middle West section the clearings for 1919 showed an increase of 16.0 per cent., and in the New England states, of only 10.9 per cent.

For the first 10 months of the year, clearings exclusive of New York City totalled \$146,577,005,900, a gain of 16.4 per cent. over 1918, but the 1918 record represented a gain of 10.7 per cent. over 1917, and that year in turn showed a gain of 30 per cent. over 1916 and of approximately 74 per cent. over 1915 and 1914. Although bank clearings exclusive of New York City are generally regarded as the best single barometer of general business conditions, it is only fair to note, as has been done in the last four issues of the YEAR BOOK, that such clearings have been materially affected by rising commodity prices. The later discussion of index numbers will serve to show, as it did in previous accounts, that the enormous increase in the price level of nearly all commodities has greatly increased the volume of checks cleared.

Clearings in New York.—For New York City bank clearings amounted to \$189,237,015,492 for the first 10 months of the year, as compared with 146¼ billions for the corresponding period of 1918, an increase of 29.4 per cent. It should also be noted that clearings for New York exceeded those for the remainder of the country by nearly 42 billions. Such a showing again emphasizes the importance of considering New York City separately when interpreting the nation's bank clearings, particularly because it is the great stock-bond, and produce-market center of the country. Produce and cotton prices have ruled ex-

tremely high during 1919. Moreover, the volume of transactions in the stock and bond market has exceeded all past records, and in many instances the securities most heavily dealt in have been quoted at greatly inflated prices.

THE SECURITY MARKET

General Conditions.—All of 1917 was marked by constant and, at times, violent liquidation, until at the end of the year stocks showed a shrinkage of fully 25 per cent. from their previous high figures. The year 1918, on the other hand, was in the main dull and steady, and the monthly averages showed comparatively little variation. With the signing of the armistice the security market was expected to manifest great buoyancy, but this proved by no means to be the case. What appreciation did occur in stock prices took place mostly in motor and oil stocks and a limited number of steel and other industrial securities. Here speculation was almost unprecedented, and a considerable number of stocks, chiefly among the motors and oils, increased by from 100 to 200 per cent. in price. But as regards bonds and standard investment stocks there occurred a further decline, although slight, and in the great mass of industrials the appreciation, though substantial, was not in any sense extraordinary. High money rates, an uncertain railway situation, bad financial conditions abroad and great labor unrest at home all contributed to make the market for investment securities unattractive, with the result that many standard investment issues are

selling considerably below 1907 panic levels. Moreover, during the month of November a considerable reaction in the market occurred, the average price for 20 rails, using Babson's figures, declining 1.78 points as compared with the previous month; 20 industrials, 9.28 points; 40 stocks in the aggregate, 5.53 points; 20 copper stocks, 1.5 points; and 20 bonds, 2.7 points.

Stock Prices.—These remarks relative to the general condition of the security market may be illustrated by Babson's composite quotations for different groups of selected stocks. As regards his list of 10 representative railroad stocks, the average monthly price remained practically stationary during the first 10 months of 1919, the average for January being 110.0, whereas the average for October was 109.9. For the whole 10 months the average stands at 111.6, as compared with 109.4 for 1918, 127.4 for 1917, 139.4 for 1916, 139.3 for 1914, and 164.9 for 1912. As compared with the preceding year the price change during 1919 has thus been, on the average, inappreciable. With the exception of July, when the average rose to 115.4, all the months averaged less than 115.0, seven months less than 111.0, and three months between 110 and 109. Public-service stocks, it may be added, also made a similar showing. The primary cause of the continued low price level has no doubt been the tremendous increase in the cost of all that is needed for operation. The scarcity of funds for security market purposes, however, has also constituted an important reason.

Taking Babson's composite price for 40 stocks, including 20 representative industrials and 20 representative railroads, it appears that the average price increased during the first 10 months of the year from 82.39 (average for January) to 99.03 (average for October), or 20.1 per cent. For the entire 10 months the average price of these stocks was 90.42, as compared with 80.97 for 1918. This price of 90.42 compares with 100.46 during January, 1917, a high record of 108.25 during November, 1916, and 73.15 during December, 1914, the first market month following the closing of the New York Stock Exchange as a result of the outbreak of the European War.

Again, taking Babson's composite price for 20 representative copper stocks, we find that the average price for October, 1919, was 42.5, or about the same as the price of 41.9 for the same month of 1918. Here again the failure of the 1919 market to show much appreciation is indicated by the fact that the average price for the first 10 months of the year was 39.5, against 37.8 for the last month of 1918, and with the exception of July, when the price averaged 46.1, every monthly average ranged between a minimum of 35.2 and a maximum of 43.7. The average price of 42.5 for October compares with 53.6 during January, 1917, and a high of 62.2 during November, 1916.

Bond Sales and Prices.—During the first nine months of 1919 bond sales on the New York Stock Exchange aggregated \$2,418,483,800, or nearly twice the total of \$1,200,843,500 of sales during the corresponding period of 1918. In 1917 the sales totalled only 726 millions; in 1916, 797 millions; and in 1915, 605 millions. As was the case in 1918, the remarkable total of the 1919 volume is to be attributed chiefly to the large transactions in American and foreign Government loans, such transactions contributing probably in the neighborhood of three-fourths of the total.

With regard to the price level, the bond market of the year presents, in the main, the same steady and liquidated character noted in the 1918 issue of the YEAR BOOK. Taking Babson's representative list of 10 highest-grade and 10 second-grade bonds, the average price for the first 10 months stands at 81.1 per cent., as compared with 79.8 per cent. for the corresponding period of 1918, thus showing little change. The October price of 79.5 compares with the average price of 80.7 for the whole year of 1918, 87.3 for 1917, 91.2 for 1916, 89.3 for 1915, 92.4 for 1914, and 98.1 for 1911. The abnormally low figure at present is due to various causes, among the principal of which are the very high cost of living, the rising tendency of long-term money rates, the flotation of numerous industrial security issues on a very attractive interest basis, and the unprecedented tendency just now of the American people either to expend

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

SECURITY MARKET TRANSACTIONS AND PRICES (New York Stock Exchange)

	TOTAL TRANSACTIONS				AVERAGE PRICES			
	Shares of Stock		Bond Sales		10 Leading Stocks 1		10 Leading Bonds 1	
	1918	1919	1918	1919	1918	1919	1918	1919
January	13,616,357	11,858,465	\$106,796,500	\$276,858,500	109.7	110.0	80.0	83.4
February	11,418,079	12,210,741	83,821,500	238,364,000	108.9	109.2	80.4	82.5
March	8,419,477	21,403,531	121,102,500	259,712,000	108.3	110.5	79.8	82.0
April	7,404,174	28,587,431	127,549,000	297,874,700	106.1	110.6	79.7	81.1
May	21,139,092	34,413,553	164,979,500	288,994,300	109.9	114.6	81.0	82.2
June	11,772,261	32,860,365	137,925,000	251,713,600	111.0	114.9	79.8	82.0
July	8,449,888	34,502,242	118,760,500	265,588,600	109.5	115.4	79.7	80.9
August	6,887,589	24,432,647	163,698,000	252,417,500	110.7	110.2	79.6	78.8
September ..	7,763,068	24,141,830	176,211,000	286,960,600	110.7	109.5	78.4	77.2
October	20,671,337	37,354,859	246,828,000	373,967,000	113.5	109.6	80.7	79.5
November ...	11,651,844	30,169,478	230,933,000	339,655,000	114.2	107.9	85.6	77.0
December ...	11,925,303	24,852,583	334,223,000	661,390,000	112.9	101.1	85.5	77.0
Total, 1910....	164,150,061							
1911....	127,207,258							
1912....	131,128,415							
1913....	83,470,693							
1914....	47,900,568							
1915....	173,145,203							
1916....	233,311,993							
1917....	185,628,948							
1918....	144,118,469							
1919....	316,787,725							

1 Babson's list.

their surplus funds for luxuries or to devote them for speculative purposes in the various booms, particularly oil, steel, and motor, which have made their appearance during the year.

Volume of Stock Transactions.—The record-breaking total of stock-market transactions during 1919 stands in striking contrast to the extraordinary dullness of the preceding year. From the security-market standpoint the earlier years of the war are to be remembered chiefly for the speculative craze to buy so-called "war stocks," and 1917 and 1918 witnessed the aftermath that might have been expected to follow such an orgy of speculation, namely, violent liquidation followed by a period of extreme dullness. Following the signing of the armistice, however, the people of this country entered upon a period of extraordinary spending, and 1919 has been marked by violent speculation in what might be called "luxury stocks," especially motors. Unprecedented speculation, however, has also taken place in oil and steel stocks, many rising to dizzy heights.

For the first nine months of 1919 shares traded on the New York Stock Exchange totalled 224,410,805, as com-

pared with only 96,869,985 for the corresponding period of 1918, an increase of over 131 per cent. The total for the first nine months only compares with a total of 144,000,000 shares for the entire year of 1918, 186,000,000 for 1917, 233,000,000 for 1916, and 173,000,000 for 1915. But during September, 1919, almost every day witnessed transactions on the New York Exchange to the amount of approximately 1,500,000 shares, and the total for the year exceeds by far anything previously on record.

New Securities Listed.—During 1918, owing to heavy flotations of Liberty bonds and Government restrictions upon new capital issues, the total of new listings on the New York Stock Exchange of stocks and bonds of private corporations was extraordinarily small. The total for the year (including nearly 144,000,000 of British bonds) aggregated only \$550,000,000, as compared with \$2,324,000,000 in 1917, and \$2,002,000,000 in 1916. For the first nine months of 1919 such listings totalled \$1,837,000,000 (including \$200,000,000 of the War Finance Corporation), as compared with only \$292,000,000 for the corresponding months of 1918.

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

INCORPORATIONS OF \$100,000 AND OVER

	1919	1918	1917	1916
January	\$492,079,400	\$287,641,000	\$312,481,000	\$331,655,000
February	323,635,000	182,183,000	350,509,500	414,408,500
March	370,871,000	197,071,000	420,567,000	258,627,000
April	515,665,300	255,701,000	439,492,000	223,908,900
May	748,683,500	309,322,500	484,683,600	257,745,200
June	1,255,427,500	227,243,060	423,224,000	326,371,000
July	1,419,539,700	185,726,500	492,965,800	262,557,500
August	822,746,000	144,786,000	462,061,900	158,933,000
September	1,946,954,500	214,820,600	257,432,000	201,455,000
October	2,363,635,200	134,224,000	381,145,700	358,950,700
November	1,341,447,500	131,080,000	371,928,400	272,968,800
December	1,077,545,000	129,951,000	221,402,200	296,179,600

INCORPORATIONS

Incorporations.—The YEAR BOOK for 1918 (p. 371), explained the unusual decline in the volume of new incorporations during 1918, owing to the flotation of billions in Liberty bonds and the drastic restrictions placed by the Government upon new capital issues. With the removal of these two restrictions a complete reversal in the situation at once took place, and the first nine months of 1919 presented a most extraordinary showing. The huge increase indicated in the accompanying table is traceable in part to the fact that many proposed incorporations which would have occurred during 1918 but which were forbidden by the above mentioned factors, became a reality in 1919. But two additional factors played a prominent part in bringing about the advance, the increased buying power resulting from credit inflation and the refilling of depleted stocks of goods.

New incorporations with an authorized capital of \$100,000 or over in the eastern states are reported as aggregating \$7,895,601,900 during the first nine months of 1917, as compared with only \$2,004,494,600 for the corresponding period of 1918 and with \$3,643,416,800 in 1917. The stupendous increase for 1919 becomes apparent when we realize that new incorporations for that year amounted to nearly four times the total recorded for the corresponding period of 1918.

New Securities Issued.—In 1918 Liberty-bond flotations and Government restrictions upon new capital issues were chiefly responsible for reducing the issue of new securities. During 1919, however, these factors were largely inoperative, except for the Victory Loan. For the first nine

months new security issues totalled the huge amount of \$2,156,653,100, and by far the largest portion thereof consisted of new issues of industrial corporations. This total compares with only \$1,004,000,000 in the corresponding period of 1918, \$1,349,000,000 in 1917, \$1,712,000,000 in 1916, and only \$974,000,000 in 1915. In other words, the showing for the first nine months of 1919 represents an increase of nearly 115 per cent. over new securities listed during the corresponding months in 1918 and 60 per cent. over the total for the entire year. The issues of new securities by months for the last two years are given below.

NEW SECURITIES ISSUED

	1918	1919
January	164,674,300	242,465,700
February	69,886,300	187,645,000
March	74,874,000	153,122,500
April	23,853,000	67,724,000
May	102,348,300	209,877,000
June	253,786,800	322,058,000
July	165,580,000	370,943,000
August	89,514,800	223,198,500
September	59,660,500	379,619,400
October	76,291,000	390,695,100
November	89,768,200	253,652,900
December	174,572,900	223,169,300
Total, 1911.....	1,739,487,720	
1912.....	2,253,587,300	
1913.....	1,645,735,800	
1914.....	1,436,517,900	
1915.....	1,435,351,400	
1916.....	2,186,499,900	
1917.....	1,529,970,200	
1918.....	1,344,810,100	
1919.....	3,024,170,400	

THE MONEY MARKET

Money Rates.—The 1918 issue of the YEAR BOOK (p. 372), called attention to the fact that money rates were never allowed to approach the abnormal during the years 1916 to 1918, de-

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

MONEY MARKET CONDITIONS

	Loans, Deposits, and Reserves of New York Clearing House Banks					
	Loans (000 omitted)		Deposits (000 omitted)		Surplus Reserves (000 omitted)	
	1918	1919	1918	1919	1918	1919
January	\$4,036,019	\$1,696,106	\$3,616,162	\$3,898,133	\$73,861,560	\$46,604,706
February	4,164,329	4,701,902	3,577,765	3,771,805	58,631,603	40,602,718
March	4,266,541	4,786,490	3,643,476	3,874,069	43,759,720	44,925,470
April	4,352,582	4,810,169	3,712,461	3,953,664	57,809,878	47,634,800
May	4,479,794	4,894,651	3,662,263	4,040,334	48,746,222	33,209,830
June	4,431,776	4,832,365	3,702,575	3,971,395	74,710,003	62,842,220
July	4,313,769	4,898,341	3,578,882	4,020,527	56,895,978	30,152,166
August	4,411,151	4,900,178	3,583,368	3,987,172	46,743,664	32,143,310
September ..	4,487,194	5,103,345	3,701,161	4,127,597	42,204,785	32,773,098
October	4,622,480	5,312,598	3,744,679	4,155,642	52,730,675	29,119,438
November	4,667,221	5,204,656	3,747,401	4,156,832	62,410,286	41,373,560
December	4,596,403	5,119,017	3,828,192	4,018,545	45,367,790	19,016,960

MONEY RATES

	New York Monthly Average				Average Bank Rates, England, France, and Germany		GOLD MOVEMENTS (Excess of Imports)	
	1918		1919		1918	1919	1918	1919
	Time	Call	Time	Call				
January	5¾	4½	5¾	5	5	5	\$658,010	x \$1,282,881
February	5¾	4¼	5½	5¼	5	5	x 2,534,892	834,686
March	6	5½	5½	5¼	5	5	x 896,997	6,677,968
April	6	4	5½	5	5	5	x 814,357	4,921,738
May	6	5½	5¼	5¾	5	5	x 3,021,570	x 876,610
June	6	5¼	5½	6½	5	5	29,187,919	x 66,838,380
July	6	6½	5½	6½	5	5	x 4,985,879	x 52,826,732
August	6	6	5½	6	5	5	x 1,722,596	x 42,698,829
September	6	6¾	5½	5½	5	5	326,907	x 27,578,838
October	6	6¾	5½	7½	5	5	x 707,910	x 39,179,395
November	6	6¾	5½	10½	5	5½	x 1,127,698	x 49,461,026
December	5¾	5¾	5½	12	5	5½	185,696	x 33,342,903

x = excess of exports.

spite record-breaking business at abnormally high prices and the unprecedented flotation of Government bonds. The reason for this unexpected situation, as there explained, is to be found principally in the artificial devices adopted by the Government for the prevention of unduly high interest rates. Not only did the Capital Issues Committee prohibit the flow of surplus funds into channels not considered essential to the successful prosecution of the war, but drastic restrictions were also placed upon stock-exchange loans.

The year 1919, however, indicates a decided change. Money rates reached unusually high levels by the close of October, due largely to the enormous volume of the nation's business at high prices, the excessive speculation in the security market, both listed and unlisted, and the withdrawal of most of

the governmental restrictions that had served during the war as a check on ill-advised expenditures and intemperate speculation. During 1918 the average monthly rate on prime commercial paper never exceeded six per cent., and the average monthly New York call-loan rate never exceeded 6¼ per cent. For the entire year the average for time-loan rates was six per cent., and for call loans, 5¼ per cent. For the first nine months of 1919 the two rates were, respectively, 5¾ and 5¾ per cent. But the average call-loan rate, as reported, does not portray the acuteness of the money situation for the time being. For the month of October call money averaged nine per cent. and at one time reached a maximum of 30 per cent., with the result that heavy liquidation occurred.

Bank Loans and Deposits.—The most noticeable feature in the banking

situation of 1917, using the New York Clearing House bank statement (exclusive of the trust companies) as a basis, was the enormous expansion in the loan item. This increased from an average of \$2,360,000,000 in January to \$4,376,000,000 in December, while deposits increased only from \$2,538,000,000 to \$3,485,000,000. In 1918 loans for the month of October averaged \$4,659,000,000 and deposits, \$3,792,000,000. For October, 1918, the ratio of loans to deposits stood at 123 per cent., as compared with about 128 per cent. in 1917. During October, 1919, loans showed a further increase to \$5,287,000,000, while deposits increased to only 4,178,000,000; in other words, loans increased by \$665,000,000, as compared with only \$434,000,000 for deposits. At the end of October loans of the New York Clearing House banks exceeded deposits by \$1,108,000,000, and the ratio of loans to deposits was 126 per cent.

Surplus reserves during 1919 averaged very low for nearly every month in the year. During 1917 such reserves fluctuated from an average of \$154,000,000 to a low of \$59,000,000 in June, whereas during 1918 the average ranged between a maximum of \$75,000,000 and a minimum of \$42,000,000. During 1919, however, surplus reserves of the New York Clearing House banks (exclusive of trust companies) never exceeded a monthly average of \$47,000,000 (the figure for January), and for the month of July the average was down to \$30,000,000. For October, 1919, surplus reserves averaged slightly over \$35,000,000. (See also XIII, *Banking and Currency*.)

PRICES AND COST OF LIVING

Continued High Level in Prices.—The 1917 and 1918 issues of the YEAR BOOK (pp. 318 and 374), contain an explanation of the rapid and general upward movement of commodity prices during those years. During 1919 there was a further slight increase, the general price level for October, 1919, as indicated by Bradstreet's index number, standing at 19.5215, as compared with 18.9942 for the same month in 1918, an increase of 2.8 per cent. Similar to the experience of the preceding three years, the continu-

ing phenomenon of increasing prices of practically all the necessities of life has been the subject of endless discussion, although to a greatly intensified degree. Much of the economic turmoil since the signing of the armistice has centered around the high cost of living. Government activities have been largely occupied in an attempt to reduce the price level, but thus far little, if any, improvement is noticeable (see I, *Administration*). Strikes have been more numerous than ever before, and bitterness in the struggle between capital and labor has reached a very acute form. At the bottom of most of the labor agitation is the contention that the cost of living confronting the working family makes necessary an increase in the wages. Many such increases have been granted to large groups of workers during the year, but it is dawning upon the community that every increase in wages means a further increase in the level of prices. The community is realizing as never before that the greatest necessity just now is increased production of the necessities of life and that only in this way can a decided improvement be effected in the cost of commodities. (See also XV, *Labor*.)

Index Numbers.—For the month of October, 1919, Bradstreet's index number averaged 19.5215, as compared with 18.9942 for the corresponding month in 1918 and with 17.9636 in January of 1918, 13.727 in January, 1917, 10.9163 in January, 1916, 9.1431 in January, 1915, 8.8857 in January, 1914, and 8.29 in January, 1908. For the first 10 months of 1918 Bradstreet's average index number of 18.3892 is practically the same as for the corresponding period of 1918 (18.6637), but 1918, it must be remembered, represented an increase of 22 per cent. over the corresponding period of 1917, and this year in turn showed an increase of nearly 63.3 per cent. over the average for 1916, nearly 92.2 per cent. compared with 1915, and 107.3 per cent. over the year 1914.

The London *Economist's* number makes a similar showing as regards English prices. For the month of October, 1919, this number averaged 6,587, as compared with 6,238 for the corresponding month in 1918 and with

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

INDEX NUMBERS

Year	Brad- street's	London <i>Econo- mist</i>	Gib- son's
1901	7.57	1948	44.5
1902	7.88	2003	53.5
1903	7.94	2197	49.0
1904	7.92	2136	48.3
1905	8.09	2342	47.2
1906	8.41	2361	49.8
1907	8.90	2508	50.9
1908	8.00	2223	54.2
1909	8.51	2231	59.2
1910	8.98	2407	59.3
1911	8.71 ⁹	2542	56.0
1912	9.1867	2699	62.6
1913	9.2115	2704	58.1
1914	8.9985	2643	60.8
1915	9.8531	3238	64.0
1916	11.8236	4216	74.9
1917	15.6385	5418	110.8
1918	18.7117	6036	122.8
1919	18.6642	6226	121.4
<hr/>			
January ..	18.5348	6094	119.7
February ..	17.6344	5851	116.7
March	17.2244	5796	122.9
April	17.2795	5798	129.8
May	17.2376	5774	128.0
June	18.0900	5988	122.9
July	18.8964	6188	127.9
August	20.0017	6450	126.7
September ..	19.4720	6503	116.9
October ..	19.5215	6587	111.2
November ..	19.9026	6795	114.6
December ..	20.1756	6985	119.4

5,845 in January, 1919, 4,908 in January, 1917, 3,634 in January, 1916, and 2,800 in January, 1908. For the first 10 months of 1919 this number averaged 6,094 and showed a situation practically the same as for the corresponding period of 1918 (6,001). The present figure of 6,094 compares with 5,354 for the corresponding period in 1917, 4,122 in 1916, 3,027 in 1915, and 2,623 in 1914. The October average

figure for 1919 represents an increase of 5.6 per cent. over the figure for the same month of 1918. But October of 1918, it should be remembered, represented an increase of 10.8 per cent. over the same month of 1917, 41 per cent. over 1916; 87 per cent. over 1915, and 124 per cent. over 1914.

Gibson's index number, however, shows an appreciable decline in the price level during recent months. The average for October, 1919, is placed at 111.2, as compared with 119.0 for October, 1918, 118.9 in January, 1918, 87.4 in January, 1917, 65.6 in January, 1916, and 58.2 in January, 1914. For the first 10 months of 1919 the Gibson number averages 122.3, as compared with 123.4 for the corresponding period in 1918, 110.8 in 1917, 60.8 in 1914, and 54.2 in 1908.

All the leading index numbers thus indicate that practically no reduction has occurred as yet in the exceedingly high level of commodity prices. The causes for this high price level have been referred to in previous issues of the YEAR BOOK. In the main, it may be repeated, present high commodity prices are attributable to the general inflation brought about by the abnormal extension of credit, to the general tendency toward profiteering, to the reduction in the food-producing and manufacturing power of many of the belligerent nations, to the unprecedented foreign demand arising out of the war, and to a scarcity of labor coupled with a huge increase in wages. (See also XV, *Labor*.)

THE CONDUCT OF BUSINESS

Government Price Fixing and Control of Production and Distribution.

—The most far-reaching change in the nation's economic life during 1918 was the extension of Government control over business through price fixing, restrictions on production, use, and distribution of certain commodities, restriction on imports and exports, licensing of leading industries, pooling of certain commodities, operation of transportation facilities, and the prohibition of various manufactures and business practices. Along all these lines the Government since the signing of the armistice has followed a policy of handing business activities back to

private control. The steps taken in this direction may be regarded as the most important changes in the conduct of business effected during 1919. In fact, it was distinctly understood that Government control and operation, as described in the 1918 issue of the YEAR BOOK (p. 375), were only emergency measures limited in time to the duration of the war and to such reasonable time thereafter as might be necessary to enable the economic situation to readjust itself to normal conditions. Even where control and management is still retained by the Government, as in the case of railway transportation, public sentiment seems

to be rapidly crystallizing, if we may judge from the press and proposed legislation, in favor of an early return to private management and operation.

An extended explanation of all the instances where such withdrawal of Government influence has occurred is clearly impossible within the space limits here available. Reference to a number of the leading examples that have occasioned most discussion in the daily and financial press will serve to indicate the far-reaching character of the movement (see also I, *Administration*). There has been a removal of import or export restrictions on numerous commodities, such as tin plate, nitrate of soda, pork, coffee, etc., as well as an abolition of restrictions with reference to the manufacturing, storing, and distribution of crude oil, fuel oil, gasoline and kerosene, rubber goods, dyestuffs, etc (see also XIX, *External Commerce*). The packing industry was released from Federal control, cable, telephone and telegraph lines were returned to their former managers (see also XIX, *Telegraphs and Telephones*), and the censorship of cable lines was lifted. Marine insurance for the railroads, conducted under a self-insurance plan, was terminated by the Director General of Railroads, and a similar step by the U. S. Shipping Board is also under contemplation (see also XIII, *Property Insurance*). Similarly, the Shipping Board has adopted a policy of disposing of its numerous vessels with a view to discontinuing the ownership and operation of merchant vessels (see also XX, *Naval Architecture*). The financial market witnessed the discontinuance of the "money pool" and the removal of restrictions on money and on dealings in foreign exchange (see also XIII, *Banking and Currency*). Leading exchange markets also managed to resume certain dealings on the same plan as existed in pre-war days. The New York Produce Exchange resumed future transactions in cottonseed oil, the Coffee Exchange restored trading in futures, and the New York Stock Exchange rescinded the war restrictions placed upon short selling. Maximum prices on many leading commodities were also removed, as on copper, steel, and coal. Only in the case of wheat, among the

nations leading products, was there sufficient sentiment to cause Government price fixing to be extended (see also XVI, *Agriculture*).

Promotion of Foreign Trade.—The Edge act enacted in November has attracted much attention as part of the important legislative movement in favor of increasing our foreign-trade facilities. The Webb-Pomerene Act approved April 10, 1918, had for its purpose the permission of combinations and associations engaged solely in the export trade and expressly freed them from coming under the Sherman and Clayton Acts, provided they did not represent a conspiracy artificially to control prices in the United States or were not used as an unfair means of competition against a domestic competitor (*A. Y. B.*, 1918, p. 20). Now the Edge act makes provisions for the creation of large corporations having for their purpose the financing of foreign purchases of American goods on long credits. The plan will not only greatly facilitate the reconstruction of Europe, but will be a decided help in providing a market for American products and in developing our foreign commerce. (See also XIII, *Banking and Currency*.)

The American public is rapidly coming to see that our large merchant marine will be useless if means are not provided for the selling of our goods abroad and the financing of shipments on long credits. To this end it is essential that large exporting and financing corporations should be created. This has been and is the policy of our leading competitors. It is also dawning upon our legislators that a large and independent marine insurance institution is essential if we are to maintain our merchant marine and prevent foreigners from combing out profits and controlling the leading channels of foreign commerce. This was fully revealed in the recent investigation of marine insurance by a subcommittee of the House Committee on the Merchant Marine and Fisheries. It may be added that there is a very decided sentiment in favor of applying the ideas contained in the Webb-Pomerene Act to marine insurance, *i. e.*, to permit marine-insurance associations, exchanges, or pools for the purpose of reinsuring their risks on hulls and car-

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

goes entering foreign trade or of transacting an insurance or reinsurance business in foreign countries and at the same time free them from the Sherman and Clayton Acts provided they are not used in furthering unfair methods of competition against domestic competitors. The strength of Great Britain in foreign trade has been due largely to the union of shipping, banking, and marine-insurance interests. The completion of the programme outlined above is essential to place the United States on a par with leading foreign nations. Not to do so will simply mean the dissipation of our large merchant marine and the reduction of our importance as a carrier and marine insurer to the unimportant position of pre-war years.

The Foreign Bond and Share Corporation.—The Foreign Bond and Share Corporation, organized with a view to facilitating the development of our foreign trade, has for its purpose the placing of public and private enterprises in Central and South America, the Far East, Europe, and other parts of the world. American investors will be enabled to buy the foreign securities themselves or the debentures of the Corporation secured by the deposit of the securities of the foreign companies. According to the Corporation's statement, it is planned to reach all classes of investors in the country. The organizers include private banking firms throughout the United States. Among the subscribers who are actively identified with it are the Asia Banking Corporation, Mercantile Bank of the Americas, the American Foreign Banking Corporation, Banco Mercantile Americano del Cuba, and the China and Japan Trading Co. and other American financial institutions which have branches in many parts of the world. The statement of the Corporation concludes:

Due to the war, the export trade of the United States has enormously expanded. Due to the same cause, America will soon have the greatest merchant fleet in the world. Neither, however, will avail the American people unless they are willing to invest some of their capital in the foreign countries to which the American merchant fleet sails, and to which American merchandise is carried. . . .

In the past London has been the great international market for the securities of

every Government of the earth and of the industries that were among the principal sources of national wealth. British investors always have been large buyers of such securities. The new-found financial position of the United States should result in a similar appreciation on the part of American investors of this factor, which is vital to the future of our foreign commerce.

Rates of investment return in Latin-American, Asiatic, and other countries needing development are higher than in the United States. There is no reason why, under careful supervision, the American investor should not be given the benefit of such attractive rates of investment return, and at the same time have the protection of good security.

Rulings on the Cotton Futures Act.

—The 1917 issue of the YEAR BOOK (p. 323) referred to the decision of Judge Youmans at Fort Smith, Ark., in July of that year to the effect that the standard form of contract used on the New York and New Orleans Cotton Exchanges is illegal in that it does not comply with the provisions of the Federal Cotton Futures Act adopted in 1916. (A. Y. B., 1916, p. 345). The decision was based on the ground that the contract fails to reveal specifically the name of the principal as is required by the law. But in March, 1919, U. S. District Judge Clayton handed down a decision at Montgomery, Ala., to the opposite effect, holding that the contract used by the New York and New Orleans Exchanges is valid under the Cotton Futures Act and that recovery upon such contracts is not precluded. According to advices both decisions will be appealed to the U. S. Supreme Court. Mention might also be made of the ruling of the Chief of the Bureau of Markets, U. S. Department of Agriculture, in view of the misunderstanding that had arisen relative to the liquidation of old-style cotton-future contracts entered into prior to March 4, 1919. The ruling was to the following effect:

Fulfillment of old-style contracts in accordance with other written terms, namely, by actual delivery or receipt of cotton, or by set-off, or ring-out, or by cash settlement in the future month in which they mature, is not prevented by the recent amendment to the Cotton Futures Act.

Stock Clearing Corporation of the New York Stock Exchange.—According to the financial press, it is believed that the recent creation of the Stock Clearing Corporation by the New York

Stock Exchange will do much to stabilize the call-money loan market, and prevent sudden flurries near the close of the day. Owing to the market's great activity during 1919 it has been asserted that many stock houses found it impossible to ascertain their loan requirements until late in the afternoon. This caused a concentration of bidding for funds just before the close of business hours, at a time when the available supply might be lacking, with the result that rates would suddenly rise to an unduly high level. The Corporation, it is maintained, will do much to correct this state of affairs since it will greatly reduce the clerical work which the existing system made necessary on the part of stock houses, thus enabling brokers to ascertain their positions and arrange for their loans in sufficient time to prevent undue congestion in the demand for funds near the close of the day. In announcing the acceptance of the certificate of incorporation the Board of Governors of the New York Stock Exchange stated:

It is expected that the operation of the new Corporation will be of substantial benefit to the banking community and Stock Exchange houses in cutting down the physical work of settlements and in materially relieving the credit situation. The authors of the new system, after years of close study both here and abroad, estimate that the present daily extension of credit extended by the banks will be reduced by about 65 per cent. Stated differently, under the new system daily credit extension will be about '35 per cent. of present requirements.

Stock and Produce Exchange Regulations.—Regulations affecting stock and produce exchanges have not been so numerous as in previous years and may be summarized briefly as follows:

(1) A readjustment of commissions on the New York Stock Exchange in conformity with the sliding scale used by brokers in other leading exchange markets of the world. The main reason for the increase, however, was to meet the heavy increase in expenses during the past two years. For non-members, joint-account transactions in which a non-member is involved, partners not members of the Exchange, and firms of which the Exchange members are special partners only, the commission on shares under \$10 a share is to be not less than \$7.50

per 100 shares; on stocks at \$10 a share, but under \$125, \$15 for each 100 shares; and on stocks at \$125 and over \$20 per 100 shares. On individual transactions the minimum commission is fixed at \$1. The commissions as just outlined compare with previous rates of \$6.25 per 100 shares on stock under \$10 and \$12.50 per 100 shares on stock above \$10. On bonds, however, the commission continues at the rate of one-eighth of one per cent. of the par value. The commissions for floor dealers were also changed, but the aforementioned rates will indicate the extent to which rates have increased for the outside public.

(2) The approval by the Governing Committee of the New York Stock Exchange of the creation of a mutual fidelity insurance company for the writing of fidelity insurance required in brokers' offices. According to the plan each house in the arrangement is limited in its participation to a total of \$100,000 of protection.

(3) The installation of a special bond ticker service by the New York Stock Exchange, whereas formerly one ticker reported both stock and bond transactions. As reported by the press, the management of the Exchange had long been working on a plan to install separate tickers for bonds and stocks, but installation was delayed because war conditions made it impossible to procure the apparatus.

(4) The adoption by the Council of Grain Exchanges at its annual meeting of a uniform contract for the purchase and sale of cash grain, to be used by all grain men associated with the several Council exchanges.

(5) Endorsement by the Board of Governors of the New York Stock Exchange of the purposes of the Businessmen's Anti-Stock-Swindling League, which was formed to oppose the growing evil of stock swindling. The League is composed of business leaders representing various associations and branches of industry throughout the country, and was organized

with a view to uniting the responsible interests of the country in a campaign against stock swindlers by warning the public of their presence; exposing their methods and earmarking them and their flord prospectuses so that they will be recognized and treated as the sinister public enemies that they are.

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

This action of the Stock Exchange is in line with the aroused sentiment throughout the nation that something should be done to stamp out the nefarious practice of fleecing an ignorant public by stock-swindling schemes. In this connection it should also be pointed out that the governors of the New York Stock Exchange have initiated a movement which has for its ultimate purpose the proper housing of, as well as the regulation of trading on, the New York Curb Market. It may also be stated that the Curb Market has been incorporated under the name of the New York Curb Market Realty Associates, Inc., and that proposed plans for the housing of the curb exchange have been under consideration. The movement initiated by the Stock Exchange with respect to the Curb Market, the second largest security market in the country at present, will recall attention to the following recommendations of the Hughes Committee in 1909:

The present attitude of the Exchange toward the curb market seems to be clearly inconsistent with its moral obligations to the community at large. Its Governors have frequently avowed before this committee a purpose to cooperate to the greatest extent for the remedy of any evils found to exist in stock speculation. The curb market as at present constituted affords ample opportunity for the exercise of such helpfulness. The Stock Exchange should compel the formulation and enforcement of such rules as may seem proper for the regulation of business on the curb, the conduct of those dealing thereon, and particularly for the admission of securities to quotation. Under such regulation the curb market might be decently housed to the relief of its members and the general public.

Blue-Sky Legislation.—Each year, as previous issues of the YEAR BOOK indicate, has its crop of new so-called blue-sky laws. In fact, the Legislation Committee of the Investment Bankers' Association of America reported that 1919 has probably seen a greater number of bills introduced than ever before and "that there has virtually been an epidemic of measures emanating from various sources," many of which are impracticable and often drafted in such form as "to bring about little, if any, benefit, while at the same time placing the brakes upon legitimate business." The new laws adopted during 1918 are those of Illi-

nois, effective June 11, Wyoming, approved Feb. 25, and Utah approved March 13. The laws of Maine and Minnesota were also amended in important particulars, the latter amendment having been the cause of much discussion since it provides that no written or printed matter containing an offer or solicitation to purchase stocks, bonds, or other securities shall be circulated in the state unless approved by the Minnesota State Securities Commission. The effect of the amendment was such therefore, as to prohibit newspapers, periodicals, and magazines from publishing advertisements containing an offer or solicitation until the proposed advertisement had been submitted to and approved by the Commission. The Legislation Committee of the Investment Bankers' Association also reported that:

The Treasury Department in Washington formulated a draft of a blue-sky measure which was intended to be one that would serve its purpose throughout the entire country and permit the various states to adjust their laws to conform with it, or write them off their statutes entirely. The bill, had it been passed, would have caused a great amount of unnecessary work, created an excessive cost of administration, hampered generally reputable offerings, and, after all, failed to have reached the culprit. The entire matter was gone over with those who were responsible for the introduction of the measure and the impracticability of the bill was made evident. Accordingly, the entire proposition was laid aside until such time as it would be possible for them, working in cooperation with people experienced in blue-sky matters, to draft a form which, in its actual operation, would be of general service at least to the extent of unifying throughout the country the various blue-sky requirements.

Anti-Trust and Other Leading Decisions.—Three important judicial decisions deserve mention as having an important bearing upon the conduct of business, two being anti-trust cases and the other relating to the Federal Bills of Lading Act.

(1) In July the U. S. District Court at Boston, in an action commenced two years previously against the New England Fish Exchange, the Boston Fish Market Corporation, the Bay State Fishing Co. of Massachusetts, and other large concerns, found the so-called "Fish Trust" guilty of monopolizing the interstate fish business in violation of the Sherman and Clayton

XII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

Anti-Trust Acts. To quote an account in the *Boston Herald*:

The control of the fresh ground fish trade in the United States is on the fish pier at Boston. It is the only market to which is brought with reasonable regularity a quantity sufficient to approach an adequate supply.

Between 70 and 80 per cent. of all the fresh fish handled at the fish pier is sold in interstate commerce. Boston controls at least 95 per cent. of the interstate trade in fresh ground fish, all handled at the pier. Of the entire amount of fish landed in the United States, the states of Massachusetts and Maine receive 84 per cent. of the cod, 99 per cent. of the haddock, 100 per cent. of the hake, and 98 per cent. of the pollock.

The "fish trust" does an annual business of 169,000,000 lb. of fish. Of this 100,000,000 lb. are landed at Boston and 69,000,000 lb. are shipped to Boston from other ports.

New York, the second largest fish centre, handles but 26,000,000 lb. It depends on Boston for 20,000,000 lb, annually.

(2) In June the U. S. Supreme Court handed down a decision in the Colgate Case, which marks another important step in the legal struggle over the maintenance of fixed uniform prices at retail and may be added to its important predecessors, the Mimeo-graph Case, the Victor Co. Case, and the United Shoe Machinery Co. Case. These cases all dealt with special devices to control retail prices, but the Colgate Co. merely followed the simple practice of refusing to have dealings with retailers who cut prices. The question then arose, would not such refusal amount to combination as forbidden under the Sherman Act. On this point the Supreme Court decided unanimously that refusal to sell to certain parties would not constitute a violation of the Sherman Act. In connection with the case the *Commercial and Financial Chronicle* points out:

The basis of the decision is the common-law proposition that the owner of a trade mark made commercially valuable by time and energy has a natural right to protect it. The Colgates had not attempted to control retail prices by any contract or any licensing scheme, but had simply declined to sell to parties whose conduct was not pleasing.

(3) Announcement was made on Aug. 13, that the Federal Government had brought suit against 19 of the largest cement manufacturing com-

panies of the East on the ground that they had entered into a combination in restraint of trade. The combination is alleged to have entered into an effective agreement in 1915 whereby the price of Portland cement has increased approximately three fold. To quote the bill of complaint:

An effective agreement was brought about among the defendants whereby each defendant, in consideration of past or future restriction of production by other defendants, restricted its annual production to substantially less than the capacity of its mills and in many cases to substantially less than its former annual production, and whereby the aggregate production of all the defendants was restricted to about 30,000,000 barrels in 1915, about 29,000,000 barrels in 1916, about 29,000,000 barrels in 1917 and about 23,000,000 barrels in 1918, their aggregate productive capacity being about 50,000,000 barrels.

(4) On June 2, the U. S. Supreme Court rendered an opinion upholding the constitutionality of the Federal Bills of Lading Act of 1916. The opinion is especially significant in that Sec. 41 of the Act, which punishes the forgery of bills of lading used in interstate or foreign commerce, is upheld. The *Journal of the American Bankers' Association* comments as follows upon this important decision:

Our members have not forgotten the ten years of effort through five successive Congresses which finally culminated successfully in the passage by Congress on Aug. 29, 1916, of the Bills of Lading Act. Before the passage of that Act the railroad whose agent issued, either fraudulently or as matter of accommodation to a shipper, a bill of lading for which no goods had been received, was exempted from responsibility by the courts to a bank or other purchaser who had advanced value on faith of the recitals in the bill. This liability is now provided by the Act. Again, there was no Federal law under which the forgery of a bill of lading was punishable, and some serious offenders escaped punishment through the leniency or lack of enforcement of state laws. In many other ways the law governing the subject was inadequate, and unsuited to modern conditions, under which the commerce of the country is moved and marketed, through the instrumentality of bills of lading, and by means of advances by the banks.

The passage of the Federal Bills of Lading Act was, in consequence, an epoch in the commercial history of the country and for the first time placed the law governing the negotiability of bills of lading covering interstate and foreign shipments, the subject of their issue and transfer, the rights of holders for value and the liabilities of carriers, upon a sound and satisfactory basis.

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

PUBLIC FINANCE

O. C. LOCKHART

FEDERAL FINANCE

Receipts and Expenditures.—The following table shows the ordinary receipts and expenditures of the Federal Government for the fiscal years ending June 30, 1918, and June 30, 1919, in millions of dollars:

	1918	1919
ORDINARY RECEIPTS		
Customs	\$183	\$183
Internal revenue:		
Income and profits tax	2,839	2,601
Miscellaneous	857	1,239
Miscellaneous revenue..	295	625
Net postal revenue....	20	2
Total	\$4,194	\$4,650
ORDINARY DISBURSEMENTS		
Civil and miscellaneous	\$1,534	\$3,264
War	5,655	9,220
Navy	1,369	2,009
Indianz	31	35
Pensions	181	222
Interest on public debt.	197	616
Total	\$8,967	\$15,366
Excess of ordinary disbursements over ordinary receipts.....	\$4,773	\$10,716
Balance in Treasury at close of year.....	\$1,319	\$1,003

The following statement shows the financial transactions of the Panama Canal to June 30, 1919:

Total amount expended or advanced to disbursing officers for purchase, construction, fortification, etc., to June 30, 1919.....	\$452,075,376
Amount expended from proceeds of bonds, including premiums	138,600,869
Amount expended from general fund.....	313,474,507
Amount reimbursable by bonds	225,000,000
Total Panama Canal bonds issued to date.....	134,631,980

The following table shows the extraordinary disbursements and special revenues for the two fiscal years 1918 and 1919, in millions of dollars:

	1918	1919
EXTRAORDINARY DISBURSEMENTS		
<i>Special</i>		
Panama Canal	\$21	\$12
Purchase of obligations of foreign Governments	4,739	3,478
Purchase of farm loan bonds	65	97
Total	\$4,825	\$3,587
<i>Public Debt</i>		
Bonds, interest-bearing notes and certificates retired	\$7,658	\$15,795
One-year Treasury notes redeemed....	27	19
National bank notes and Federal reserve notes retired	22	24
Total	\$7,707	\$15,838
Grand total, extraordinary disbursements.	\$12,532	\$19,425
SPECIAL REVENUES		
Panama Canal tolls..	\$6	\$7
Liberty bonds and notes	7,574	11,360
Certificates of indebtedness	9,018	16,955
War savings and thrift stamps	353	738
Postal savings bonds..	1	.....
Deposits for purchase of one-year Treasury notes	19	.....
Deposits for retirement of national bank notes and Federal reserve notes.....	10	23
Total	\$16,981	\$29,083

Public Debt.—The following is a statement of the public debt of the United States as of June 30, 1919, in thousands of dollars:

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

PUBLIC DEBT OF THE UNITED STATES

Interest-bearing debt:	
2s, Consols of 1930.....	\$599,724
4s, Loan of 1925.....	118,490
2s, Panama Canal Loan, 1916-36	48,954
2s, Panama Canal Loan, 1918-38	25,947
3s, Panama Canal Loan, 1961	50,000
3s, Conversion bonds, 1946-47	28,895
2½s, Postal savings bonds, 1931-39	11,350
2s, One-year certificates of indebtedness	178,723
Certificates of indebtedness (various rates of interest)	3,446,260
3½s, First Liberty Loan...	1,410,072
4s, First Liberty Loan...	167,793
4½s, First Liberty Loan...	406,932
4s, Second Liberty Loan...	704,204
4½s, Second Liberty Loan...	2,862,252
4½s, Third Liberty Loan, 1928	3,958,553
4½s, Fourth Liberty Loan, 1933-38	6,794,505
Victory Liberty Loan, 1922- 23 (3¼ and 4¼ per cent.)	3,467,845
War savings and thrift stamps, 1923-1924 (4 per cent. compounded)...	953,997
	<hr/> \$25,234,496
Debt on which interest has ceased:	
Old debt	\$900
Funded loans, 1891.....	21
Loan of 1904.....	13
Funded loan of 1907.....	407
Loan, 1908-18	936
Refunding certificates.....	11
Certificates of indebtedness	8,821
	<hr/> \$11,109
Debt bearing no interest:	
Old demand notes	\$53
United States notes (green- backs) less gold reserve.	193,702
National bank notes, re- demption account.....	35,831
Fractional currency.....	6,843
	<hr/> \$236,429
Total interest-bearing debt...	\$25,234,496
Total debt on which interest has ceased	11,109
Total debt bearing no interest	236,429
	<hr/> \$25,482,034
Balance in Treasury free of current obligations.....	\$1,002,732
Net debt	<hr/> \$24,479,302

principal of the public debt, for the entire period between April 6, 1917, and Oct. 31, 1919, in thousands of dollars:

RECEIPTS	
Customs duties	\$520,219
Internal revenue:	
Income and profits taxes...	6,531,783
Miscellaneous internal reve- nue	2,995,240
Miscellaneous revenue	1,233,022
Total	<hr/> \$11,280,264
DISBURSEMENTS	
Ordinary	\$25,805,935
Foreign loans	9,406,372
Other special	200,804
	<hr/> \$35,413,111
Excess of disbursements.....	24,132,847

Within this period the net public debt increased from \$1,189,651,000 to \$25,322,498,000. Of the aggregate expenditures, therefore, 68 per cent. was raised by loans and 32 per cent. by other revenue. Taxation proper provided about 28 per cent. of aggregate expenditures, or 39 per cent. if loans to the Allied Governments are regarded as investments and therefore deducted from total expenditures. Although a great war has seldom been financed so largely by means of taxation, the vast quantities of Government obligations issued as well as the method of issue have been one of the most important causes of the great increase in the media of exchange. (See also *Banking and Currency, infra.*)

Loans to Allies.—The several Liberty Bond Acts authorized the extension of credits to the Allied Governments during the continuance of the war in a maximum amount of \$10,000,000,000 for the purpose of providing more effectually for the national security and defense and for prosecuting the war. At the time of the passage of the Victory Liberty Loan Act on March 3, 1919, the amount drawn from the Treasury under these authorizations was about \$8,000,000,000. The new Act made no additional appropriation but extended the period within which advances may be made until 18 months after the President has proclaimed the war ended. However, advances may be made within the period so extended only for the purpose of providing for the purchase of any property owned directly or indirectly by the United States and not needed by the United States, or of any

wheat, the price of which has been guaranteed by the Federal Government. The Treasury has not as yet established any credits under this Act.

Under this authorization the Treasury is to receive at par for advances made the obligations of foreign Governments issued after March 3, 1919, bearing at least five per cent. interest and maturing not later than Oct. 15, 1938. The Act also provides that obligations of foreign Governments acquired under the First Liberty Bond Act shall mature not later than June 15, 1947, and those acquired under the later Bond Acts may not run beyond Oct. 15, 1938.

The aggregate amount advanced under these credits down to Oct. 31 was \$9,647,419,495. The amount actually paid out of the Treasury was \$9,406,371,889. Advances in the amount of \$69,321,000 have already been repaid, but none of these repayments constitutes part of a general programme of repayment by any foreign Government. It is not to be expected that considerable amounts will be repaid for some years to come. By nations the credits are as follows:

Great Britain	\$4,277,000,000.00
France	3,047,974,777.24
Italy	1,620,922,872.99
Belgium	343,445,000.00
Russia	187,729,750.00
Czecho-Slovakia	55,330,000.00
Greece	48,236,629.05
Serbia	26,780,465.56
Rumania	25,000,000.00
Cuba	10,000,000.00
Liberia	5,000,000.00
Total	\$9,647,419,494.84

In addition to these amounts a credit of \$400,000,000 to France has been arranged for by the War Department in connection with the purchase of surplus Army supplies in France. For these amounts 10-year bonds bearing five per cent. interest from August, 1920, were accepted. This credit is not within the \$10,000,000,000 limitation imposed on advances to the Allies under the several Liberty Bond Acts. Credits recently granted by the Treasury have been limited to those required to meet war commitments in this country, although the term "war purposes" has been interpreted to include the purchase of food for the civilian populations. Representatives of the Allied

Governments have been required to show the Treasury their precise needs for dollar credits, not only when they receive credits, but also before payments of cash are made from the Treasury.

Advances for the payment of interest on advances already made have never been specifically authorized by Congress and the Treasury's request for authority to make such advances was denied by the expiring Sixty-fifth Congress. However, the Acts authorizing the extension of credits do not specify the times at which interest is payable, and interest has heretofore been periodically charged against credits already extended, although some interest has been paid in cash. It was acknowledged before the House Ways and Means Committee that the Treasury has authority to accept interest-bearing notes of the Allies in payment of interest, and in connection with the funding of the demand obligations given for advances, negotiations are now in progress with a view to deferring interest payments for a period of two or three years in this manner. Since these advances now bear five per cent. interest, the adoption of the plan will result during its continuance in the addition of approximately \$470,000,000 annually to the amounts owing the United States by the Allied Governments. The plan is considered of special importance because of the derangement of the foreign exchanges (see *Banking and Currency, infra*), but will, of course, add considerably to our annual revenue requirements. This is as far as the Treasury has gone in the grant of advances for use in supporting the depreciated exchanges of the Allied countries or in acquiescing in the frequent unofficial suggestions for the pooling of the war debt or the forgiveness in whole or part of the debt of the Allies to this Government.

Purchase of Foreign Currencies.—During the war reciprocal arrangements were made with the four principal Allied Governments under which French and Belgian francs, lire, and pounds sterling were made available to meet expenditures by the United States abroad in exchange for the equivalent in dollars made available to those countries to meet their ex-

penditures here. The total currency exchanged in this manner between January, 1918, and Nov. 15, 1919 amounted to \$1,526,322,688.65.

In order to meet expenditures in Spain for the American Expeditionary Forces a Spanish bank credit of 250,000,000 pesetas was opened in August, 1918, when Spanish exchange was at a considerable premium. These credits were covered by the sale of Treasury certificates of indebtedness payable in pesetas, of which 155,000,000 pesetas were issued. Part of this amount was recently repaid, leaving 75,000,000 pesetas outstanding. With commissions the money cost about $5\frac{1}{4}$ per cent.

Victory Liberty Loan.—On March 3, 1919, the fifth Liberty Bond Act was passed. This authorized the issuance of \$7,000,000,000 of notes in addition to the amount of obligations previously authorized, and increased the authorized amount of certificates of indebtedness to \$10,000,000,000. Considerable discretion was left the Secretary of the Treasury as to the terms and conditions of the notes to be issued. Two interconvertible series were offered, one bearing interest at $3\frac{1}{2}$ per cent. and fully exempt from all taxation except estate or inheritance taxes; the other bearing $4\frac{3}{4}$ per cent. and subject to all Federal taxes except the normal income tax. Both series are redeemable at the interest dates in 1922 and payable in 1923, four years from the date of issue. A three weeks' campaign for the sale of \$4,500,000,000 notes resulted in subscriptions for \$5,249,908,300, all Federal reserve districts except Atlanta and Dallas having exceeded their quotas. The total amount allotted, corrected to Sept. 30, was \$4,498,312,650. Payment was made in six instalments, from May 10 to Nov. 11.

Special Tax Exemptions.—In addition to the general exemption of interest on a par amount of \$5,000 of United States obligations issued after Sept. 1, 1917, and in addition also to the special exemptions accorded Liberty-bond interest under the Act of Sept. 24, 1918 (*A. Y. B.*, 1918, p. 383), the Victory Liberty Loan Act grants the following exemptions from all Federal, state, and local taxes except estate and inheritance taxes for a period

of five years after the issuance of the Presidential proclamation of peace:

- (1) Interest received on and after Jan. 1, 1919, on bonds of the First Liberty Loan converted, the Second Liberty Loan converted and unconverted, and the Third and Fourth Liberty Loans, the principal of which does not exceed \$30,000 owned by any one interest.
- (2) Interest received on and after Jan. 1, 1919, on an amount of the bonds described in (1), the principal of which does not exceed \$20,000 in the aggregate owned by any one interest, provided that this exemption shall apply only to the interest on an amount of such bonds not exceeding three times the amount of Victory notes originally subscribed for and still owned by the taxpayer at the date of his tax return.

As a result of this legislation interest on a total amount of \$160,000 of Liberty bonds of the First Loan converted and of the Second, Third, and Fourth Loans is freed from all tax liability except for estate and inheritance taxes, provided the holdings are distributed among the several issues in the proportions required by the law. In case total holdings exceed the exempted amounts, the problem of determining the amount of taxable interest becomes quite complex. This has led many to feel that these limited exemptions are not worth while, and others have opposed all exemptions on the ground that by them the purpose of graduated rates is largely defeated. The Secretary of the Treasury has again urged in his annual report that income from tax-exempt state and municipal bonds be included in total income for the purpose of determining the rates of surtax to be applied to that portion of the income that is subject to tax. The Secretary has also recommended that the present complicated exemptions of the four per cent. and $4\frac{1}{4}$ per cent. Liberty bonds be simplified (and incidentally liberalized) by the removal of certain conditions upon their enjoyment now imposed by law.

Conversion of Liberty Bonds.—When the Third Liberty bonds were issued, the conversion privilege previously accorded to the four per cent. bonds of the First Liberty Loan converted and of the Second Liberty Loan was required to be exercised by Nov. 9, 1918, after which date it lapsed. In

accordance with the terms of the Victory Loan Act, this privilege was formally reopened on March 7, 1919, but may be again terminated on six months' public notice by the Secretary of the Treasury. As nearly as can be determined, about \$300,000,000 of four per cent. bonds had been converted under these provisions up to Sept. 1. On that date there remained outstanding approximately \$750,000,000 unconverted four per cent. coupon bonds.

Sinking Fund.—The Third Liberty Loan Act established a bond-purchase fund to be fixed in the discretion of the Secretary of the Treasury but not to exceed five per cent. of the face amount of all Liberty bonds originally issued (*A. Y. B.*, 1918, p. 384). Purchases from this fund may be made until the expiration of one year after the termination of the war. Purchases were made indirectly through the War Finance Corporation. At a cost of \$907,905,526 and accrued interest, bonds of the par value of \$953,080,500 were bought from April 12, 1918, to Nov. 15, 1919. The distribution of these purchases among the several issues is as follows:

First 4's and 4½'s.....	\$25,115,000
Second 4's and 4½'s.....	371,215,000
Third 4½'s	208,635,500
Fourth 4½'s	348,115,000
Total	\$953,080,500

In addition to these amounts, \$64,812,150 (chiefly of the Third Loan) were purchased as a result of the payment of foreign loans. The cost of these purchases was \$61,320,796 and accrued interest.

The Victory Liberty Loan Act provided for a cumulative sinking fund of 2½ per cent. of the amount of Liberty bonds and Victory notes outstanding on July 1, 1920, after deducting any obligations of foreign Governments then held. Interest on the full amount of the obligations retired through the sinking fund was also appropriated. The Civil War sinking fund was accordingly repealed. It has been estimated that under the new provision the entire debt will be retired in about 25 years. The annual charge for the service of the war debt will approximate \$1,200,000,000 until foreign Governments resume the annual payment of interest on our loans

to them. Bonds issued for these advances will be retired as the advances are repaid.

Bond Prices.—Because of their complete tax exemption the First Liberty bonds have ranged during 1919 between 98.20 and 101. For similar reasons Victory 3¾ per cent. notes have remained near par, varying from 98.84 to 100.48. The 4¾ per cent. notes are interconvertible with the 3¾'s and have sold at only fractionally lower prices. The Liberty 4's have ranged from 91 to 96. On extremely small sales First Liberty bonds converted into the Fourth have sold from 95.42 to 102.06. Because these bonds enjoy a special exemption from surtaxes and profits taxes, and because their supply is so small, their prices rule higher than those of other 4¾ per cent. bonds, which have ranged between 91.00 and 96.60, depending on maturity and market conditions.

Treasury Certificates of Indebtedness.—When \$4,500,000,000 of Victory notes were offered for public subscription, the Secretary of the Treasury announced that further requirements of the Government would be met by the use of Treasury certificates to be ultimately refunded into bonds or notes without resort to another popular selling campaign. The intention to rely heavily on temporary financing was further emphasized by the fact that the amount of certificates outstanding at the date of the Victory Loan was \$6,256,000,000, or \$1,756,000,000 in excess of the amount of notes to be allotted. Had oversubscriptions been accepted, the amount of short-term financing could readily have been restricted to issues in anticipation of tax receipts of the current fiscal year. Instead the Treasury has been impelled to anticipate receipts for the fiscal year 1920-21 by the issuance of \$657,000,000 of tax certificates due Sept. 15, 1920. Existing and unused authorizations of bonds and notes aggregate \$7,524,351,500, but inasmuch as the security markets are not now in favorable position to absorb a re-funding loan on satisfactory terms, it may be expected that the process of "rolling" certificate issues to meet current expenditures will be continued for some time to come. Continued

use of the tax certificates is clearly forecast in the Secretary's report for 1919. (For detailed discussion of the Treasury's temporary financing, see Jacob H. Hollander, *War Borrowing*, New York, 1919.)

There were outstanding on Nov. 22 loan certificates in the amount of \$1,634,671,500 and tax certificates amounting to \$1,827,586,500, or a total of \$3,462,258,000. Semi-monthly issues of certificates, which were suspended in September, were resumed on Dec. 1, when one series each of loan and tax certificates were offered, and subscriptions totalling \$413,121,000 were received. In addition to the loan and tax certificates, \$274,095,000 of special certificates were outstanding on Oct. 31, 1919.

War Savings Certificates.—The Treasury plans to continue sales of war savings and thrift stamps, but the fiscal reasons for the movement seem to be becoming subordinate to the gospel of thrift. A new series of saving stamps was issued at the beginning of the year and another is planned for 1920. Registered "Treasury savings certificates" in denominations of \$100 and \$1,000 have also been provided. Sales of stamps during the fiscal year ended June 30 aggregated \$783,177,606, but since April they have averaged but \$6,000,000 per month, although increasing in recent months. Of total sales of \$1,115,076,439 down to Oct. 31, 1919, \$204,391,451 have been redeemed.

Revenue Legislation.—After three months' consideration a bill intended to raise \$8,000,000,000 in 1918-19, or one-third* of estimated expenditures, was reported from the House Committee on Ways and Means on Sept. 3 and passed the House on September 20, 1918 (*A. Y. B.*, 1918, p. 385). The Senate Committee at once entered upon an extensive revision of its provisions. The final result was influenced by the reduction of estimated expenditures consequent upon the signing of the armistice. Some of the more important changes were the elimination of the proposal to tax the income from state and municipal bonds, various reductions among excise taxes, and the insertion of a number of so-called "cushion" provisions intended to mitigate the hardships and injus-

tices which are likely to arise under heavy taxation. The bill passed the Senate on Dec. 23, 1918, agreement between the two houses was finally reached on Feb. 6, 1919, and the measure was approved on Feb. 24 (see also I, *Congress*). The law follows in general the lines of the 1916 and 1917 Acts and levies income, profits, and estate taxes as well as a great variety of excises and privilege or occupation taxes, including a tax upon the employment of child labor.

The new rates of tax upon incomes and profits are made retroactive to Jan. 1, 1918. Rates are also fixed for the calendar year 1919 and thereafter. Two normal rates of tax are imposed on personal incomes. On the first \$4,000 of income above the personal exemption the rate of tax for the year 1918 is six per cent.; upon additional amounts it is 12 per cent. The corresponding rates for 1919 are four per cent. and eight per cent. Surtax rates are the same in both years. From one per cent. on incomes between \$5,000 and \$6,000, the rate increases by one per cent. for each \$2,000 of income up to \$100,000. Above this point the rate rises by irregular steps from 52 to 65 per cent. On incomes above \$1,000,000 the combined normal and surtax rate is 77 per cent. for 1918 incomes and 73 per cent. for subsequent years. Such high rates constitute too great an inducement to evasion, especially since the period of patriotic fervor induced by the war has passed, or at least lead to avoidance of the tax through investment in tax-exempt securities.

The corporation income tax is 12 per cent. on income of 1918 and 10 per cent. on income of subsequent years. The additional 10 or 15 per cent. tax on undistributed net income imposed in 1917 has been repealed, and corporations may accumulate income in their business without penalty unless the Commissioner of Internal Revenue certifies that the accumulation is unreasonable.

The income tax is simplified and improved in many particulars. The personal exemptions are \$1,000 for single persons and \$2,000 for heads of families, with \$200 additional for each dependent under 18 or incapable of self-support. Deductions allowed are

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

more generous and reasonable than in the earlier laws. As an inducement to Liberty bond subscriptions, interest is made deductible on obligations incurred to purchase or carry United States obligations issued after Sept. 24, 1917, even though the bond interest may itself be exempt. Losses in transactions entered into for profit may now be deducted without limitation. Considered from the point of view of the Treasury, however, it was unfortunate that this improvement in the law should have been delayed until the year when tax rates were highest. More satisfactory provisions than heretofore are made concerning depreciation and depletion, and some relief is afforded for business contingencies more or less directly connected with the sudden cessation of the war. Thus, amortization of war facilities may be charged off, net losses for taxable years ending Oct. 31, Nov. 30, or Dec. 31, 1919, may be deducted either from 1918 or 1920 income, and shrinkage in inventory after the close of the taxable year may also be claimed as a deduction. Corporations benefit particularly by removal of the limitation upon the amount of deductible interest and by the exemption from tax of dividends received from other taxable corporations:

The indefensible excess-profits tax on individuals has been repealed and the excess tax now applies only to corporations having invested capital. The excess-profits credit is fixed at eight per cent. of invested capital for the current year plus \$3,000. On income in excess of this amount and not in excess of 20 per cent. of invested capital the rate for 1918 is 30 per cent.; on all amounts in excess of 20 per cent. of capital the rate is 65 per cent. The corresponding rates for 1919 and subsequent years are 20 per cent. and 40 per cent. With this tax was combined a war-profits tax for 1918 at 80 per cent. of the income after deducting \$3,000 and the average pre-war income adjusted for subsequent changes in invested capital, but not less in any case than 10 per cent. of current invested capital. This is in effect an alternative excess tax, the higher of the two being imposed. When the minimum credit of 10 per cent. of invested capital applies, as in

most cases, the 80 per cent. tax falls on any corporation having an invested capital of \$375,000 or more, provided 1918 earnings were above 12 per cent. of invested capital. This tax will apply to earnings subsequent to 1918 only in so far as \$10,000 or more are derived from Government war contracts.

Income and profits taxes are made payable in quarterly instalments. In many respects administrative provisions have been improved, and wide latitude is given the Commissioner of Internal Revenue in the issuance of regulations. An Advisory Tax Board was provided and has done efficient work in formulating rules for guidance in cases of peculiar difficulty. This Board has now been discontinued, but provision has been made within the Bureau for special consideration of peculiar cases.

There has been increasing protest against excess-profits taxes on the ground that they have discouraged business, induced extravagant expenditures, and increased the cost of living. No doubt there is truth in these charges, particularly when rates are as high as those applicable to 1918 income, but it is also true that the shifting of tax through advanced prices cannot be easily gauged while tax rates are fluctuating and uncertain and prices as a whole are rapidly rising. The complexity of the administration of the profits taxes has also been criticized, although this complexity is in a measure due to the relief provisions in the law. Simplification has been urged upon Congress by the President, but the condition of the finances does not yet admit of a reduction in the aggregate yield of taxation.

The rates of the estate tax on estates not over \$1,500,000 are lowered as compared with the 1917 law. The tax on Pullman accommodations has been reduced to the level of that on passenger fares, eight per cent. The tax has been increased on cigars and tobacco and on beverages, and a new tax added on most goods sold at soda fountains. The capital-stock tax and other special taxes have been considerably increased. The regulation of child labor is sought in a new 10 per cent. tax on net incomes of certain

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

sorts of establishments employing children under stated ages or in night work or for more than six eight-hour days per week.

The following table shows in millions of dollars the official estimates of amounts to be received under the Revenue Act for the fiscal years 1918-19 and 1919-20, without making adjustment for the payment of income and profits taxes in instalments which run into the succeeding fiscal year:

Tax	1918-19	1919-20
Income and profits...	\$4,707	\$3,050
Estate	110	110
Transportation, etc...	245	246
Beverages	450	75
Cigars and tobacco..	218	251
Admissions and dues.	54	54
Excise	126	279
Special	137	89
Stamp	31	31
Child labor	Not estimated	
Total	\$6,078	\$4,185

Future Policy.—The immediate future of revenue legislation is not yet clear. Revenue needs have so far prevented any amendment of the Act, but there will be increasing pressure for tax reduction which will be difficult to grant while expenditures continue at high levels. The sinking fund will require about \$300,000,000 annually, and interest on the debt will absorb \$1,600,000,000 during the next three years. The enormous increase in prices and wages will tend to result in doubled expenditure as compared with the pre-war level, and many new and costly activities are the heritage of the war.

The official Treasury estimates indicate that ordinary expenditures during the current fiscal year, 1920, will reach \$6,813,000,000, or \$705,000,000 in excess of estimated receipts. Moreover, among current receipts are included considerable amounts representing salvage of war materials and supplies which, as the Secretary justly remarks, should be devoted to the reduction of the floating certificate debt. Maturing obligations are expected to exceed receipts on account of debt by \$3,454,000,000, so that the total estimated deficit for the fiscal year 1920 is \$4,159,000,000.

On the basis of incomplete estimates of expenditures for the fiscal year ending June 30, 1921, there should be a

net surplus of receipts amounting to \$1,647,000,000. For the two years, therefore, the total deficit will be at least \$2,500,000,000. This sum may be taken to represent roughly the amount of the outstanding floating debt that will require to be funded into bonds or notes during the next 18 months if the year 1921-22 is to be begun clear of temporary loans. (See also I, *American History*.)

These forecasts leave no ground for expectation of early or considerable reduction in tax burdens, and neither the Treasury nor Congress has any illusions on that point. Nevertheless, the Secretary recommends the elimination or reduction of the excess-profits tax and a corresponding increase of the normal income tax and of the lower brackets of the surtax. It may be questioned whether such a change would make our tax system as a whole more equitable, since the larger part of the burden would apparently be transferred to the salaried classes, while so-called unearned income could readily avoid the heavier normal tax by investment in Government securities exempt from normal tax. From a purely fiscal point of view the plan would, of course, be desirable because of its favorable effect upon Liberty bond prices.

Budget Reform.—Heavy public expenditures in peace as well as war have revived and deepened interest in national budgetary reform. The House of Representatives has passed a bill creating a Budget Bureau in the office of the President and providing for an independent Bureau of Audit. The Senate is understood to favor placing the control of the budget estimates under the Secretary of the Treasury. Neither house seems disposed to limit the power of Congress to initiate appropriation bills or even to introduce some really effective centralization of the work of raising and appropriating money; in other words, Congress proposes what has been called an executive budget, and the two houses are at odds over that. In contrast with this position, Secretary Glass has come out strongly in favor of a thoroughgoing budgetary reform, which should not only secure carefully prepared estimates of governmental needs and means, but should also limit

the power of Congress to increase the executive proposals. Although many students of the problem have felt that much would be gained through the adoption of a scheme for authoritative and carefully considered estimates, the Secretary holds that piecemeal legislation will retard rather than accelerate true budgetary reform. (See also I, *American History*.)

STATE AND LOCAL FINANCE

Legislative Tendencies.—The legislatures of 43 states met during the year 1919. Financial legislation quite generally reflected the pressure of rising expenditures upon the revenues. New laws and amendments to old laws were enacted not alone for the sake of reform, but quite as much for the improvement of the revenue. The result on the whole registers gratifying progress toward improved fiscal systems, although here and there are found enactments revealing a retrograde tendency. There appears also to be a disposition to adopt substantially uniform financial legislation in the several states. This does not reflect a mere tendency to imitate, but is rather the fruition of organized and nationwide efforts to secure more satisfactory legislation on financial matters.

Two main lines of legislation may be noted. On the one hand, economy in state expenditure has been sought through budgetary legislation, while direct limitation of expenditures or of tax rates for local governments has been somewhat less common. On the other hand, a number of states have adopted graduated income- and inheritance-tax laws, and other states have endeavored to increase their revenue from these taxes but without neglecting other possible sources of enlarged revenue.

The Budget.—Nine states enacted laws for the creation of a budget system. Arizona (Ch. 61), Oklahoma (Ch. 142), and South Carolina (Ch. 130), passed very similar laws, drawn from the Virginia statute, while Nevada followed the Maryland law closely. Wyoming (Ch. 10) also adopted the executive budget system. In New Hampshire the governor-elect is to receive and may investigate the departmental estimates, on the basis of

which he is later to make his official recommendations to the legislature (Ch. 153). Nebraska created a Department of Finance under a secretary appointed by the governor; among other duties the Department will prepare the budget for the governor (Ch. 190). Michigan and Texas provided for the preparation of the budget by a commission or board of control. (See also V, *State Administration*.)

Corporation Taxes.—New York broadened the scope of its corporation franchise tax on net income to include virtually all corporations except banking institutions and public utilities. The rate was increased from three per cent. to 4½ per cent. (Ch. 628). West Virginia levied an additional tax at the rate of 0.25 per cent. on the net income of corporations (Ch. 7, Ex. Sess.). Massachusetts will hereafter tax corporate income assignable to that state at 2½ per cent., but retains also the old corporate excess tax at the rate of \$5 per thousand (Ch. 355). For purposes of the franchise tax Connecticut will permit water, gas, and electric companies to deduct from income the gross amount received from the sale or rental of appliances using these facilities, and also income from the sale of water, gas, or electricity to other public-service companies for distribution in the state (Ch. 249).

Texas imposes a tax on foreign corporations on the proportion of capital stock and profits which the gross income in Texas bears to the entire gross income. The law has been clarified and the rates of tax somewhat increased on the larger corporations (Ch. 42). New Mexico also adopted a new corporate franchise tax. Missouri increased the rate of the franchise tax from ¾/40 to ¼/10 of one per cent. of capital stock and surplus employed in the state (Ch. 237). Rhode Island fixed a minimum franchise tax equal to 25 cents per \$1,000 of the authorized capital of miscellaneous corporations (Ch. 1736).

Insurance companies in Connecticut will no longer be taxed on their assets but on their gross investment income excluding rents from Connecticut real estate and income from certain exempt sources. The rate of tax is set at four per cent. for 1920 and 1921 and 3½ per cent. thereafter (Ch. 337). Georg-

ia increased the rate of tax on insurance premiums from 1 to 1½ per cent. (Ch. 299.)

Bank Taxes.—The Oklahoma law concerning the taxation of bank shares has been amended to permit the deduction of that portion of their actual value which is invested in real estate within the state and the separate taxation of such realty (Ch. 203). Iowa banks and trust companies may deduct from their assessed valuation Federal war bonds actually owned for more than 60 days before the end of the calendar year. Nebraska banks are forbidden to deduct the amount of such securities from the value of their capital stock (Ch. 162). An amendment to the Kansas statute will remedy certain discriminations which previously existed in the assessment law of that state (Ch. 306).

State banks and trust companies in Rhode Island will not be taxed on the amount of their savings deposits invested in Federal bonds issued since March 31, 1918, which were subscribed for and purchased at par for the bank's own account and held for at least six months next preceding July 1 of each year (Ch. 1775).

Income Taxes.—Four states have adopted the general income tax. New York enacted a personal income-tax law modelled on the Federal law but exempting salaries and interest derived from the U. S. Government and also interest on bonds of New York municipalities and State. The rates are one per cent. on the first \$10,000 of net income, two per cent. on the next \$40,000, and three per cent. on all net income over \$50,000. Personal property yielding an income is exempted from the property tax. Nonresidents are subject to tax on income from personal services and business within the state but not on investment income. The denial to nonresidents of the benefit of the personal exemptions has been held unconstitutional in the lower Federal court and is now pending on appeal. One-half the yield of the tax accrues to the state and the remainder is to be distributed among the local divisions in accordance with the assessed valuation of real estate (Ch. 627).

The Alabama income-tax law is similar to that of New York but applies also to corporations, whose dividends

are included in the personal income tax. Uncollected rentals and income from land used for agricultural purposes are excluded from taxable income. Forty per cent. of the revenue goes to the state and the remainder to the county and municipality of residence. The New Mexico law imposes graduated rates of tax on the income of individuals, corporations, and owners of mines and oil and gas wells. Personal-property tax receipts will be accepted in payment of the income tax. Missouri has repealed a similar provision in her income-tax law and has also raised the rate from 0.5 to 1½ per cent. (pp. 718, 721).

The North Dakota income-tax law marks a departure from other American laws in that it differentiates between earned and unearned personal incomes. Beginning at one-quarter of one per cent. on the first \$1,000, the rates on earned incomes rise by steps of one-quarter of one per cent. to five per cent. on the twentieth thousand; six per cent. on the next \$10,000; eight per cent. on incomes between \$30,000 and \$40,000; and 10 per cent. on income in excess of \$40,000. The rates on unearned incomes are in general twice as high but reach the maximum rate of 10 per cent. at \$30,000. The tax is imposed only on income from sources within the state, and payment may be made with personal-property tax receipts. The rate on corporation income is fixed at three per cent., but there is also a tax on undistributed net income. The deduction for interest on corporate indebtedness is limited. Both the individual and the corporation income tax are required to be collected at the source (Ch. 224).

Inheritance Taxes.—Kansas (Ch. 305) and New Hampshire (Ch. 37) adopted direct inheritance taxes, but in the former state the exemptions are quite high. New Mexico also adopted an inheritance tax on both direct and collateral inheritances (Ch. 122).

Among states which already had inheritance tax laws on their statute books, the chief development of the legislative year has been the lowering of exemptions and increase of rates. Georgia has introduced two new classes of heirs and imposed graduated rates which reach a maximum of

21 per cent. upon inheritances exceeding \$500,000 to distant relatives (Ch. 304). Similar but less sweeping changes were made in the laws of Minnesota (Ch. 410 and Ch. 4, Ex. Sess.), North Dakota (Ch. 225), South Dakota (Ch. 108), Oklahoma (Ch. 296), and Oregon (Ch. 392). Although Georgia restricted its tax on the property of nonresidents to realty and tangible personalty within the state, New York has further receded from its former position and will hereafter tax the property of nonresident decedents consisting of shares in domestic corporations and New York national banks and of securities of foreign corporations to the extent that they represent realty in the state (Ch. 626).

Automobile Licenses.—License fees for automobiles have been increased in a number of states. In Georgia the rate on trucks rises rapidly with carrying capacity, reaching \$1,125 for trucks in excess of seven tons (Ch. 144). In New Hampshire (Ch. 55) and Oregon (Ch. 399) the license system is being substituted for assessment as personal property, and in Arizona the personal tax must be paid or secured before license may issue.

Property Taxes.—The new Indiana tax code (Ch. 59) limits the amount of annual taxes in any taxing unit to a sum not greater than the tax yield of the preceding year, and limits the total rate for all purposes to $1\frac{1}{2}$ per cent., unless the Tax Commission permits a higher rate. North Dakota also passed a tax-limit law within the year (Ch. 214), while in New Mexico (Chap. 17, 19) and in Georgia (Ch. 154) the limits have been raised.

The new Alabama tax code requires that property be assessed at 60 per cent. of value, and an amendment to the Washington law makes the rate of assessment definitely 50 per cent. instead of not over 50 per cent. (Ch. 142). A North Dakota law requires railroad and similar property, flour mills, elevators, business buildings, land, and bank stock to be assessed at full value, whereas live stock, farm personalty, dwellings, and other property are to be assessed at 50 per cent. of value (Ch. 220).

South Dakota has imposed a tax of three mills on moneys and credits ex-

cept mortgages, which are subjected to a registry tax of 10 cents per \$100 per year of life but not to exceed 50 cents per \$100. These taxes are in lieu of other taxes upon money and credits (Chs. 109, 113). Oregon has exempted notes secured by recorded mortgages on realty from taxation as personal property (Ch. 104). Georgia has provided for tax inquisitors to be appointed by the State Tax Commission on the governor's recommendation and to be paid on a commission basis (Ch. 299).

Oklahoma will hereafter assess corporations other than public-service and banking corporations upon the "value" rather than the "net value" of their moneyed capital, surplus, and undivided profits (Ch. 203). Utah fixed a definite basis for the assessment of metalliferous mines by the State Board of Equalization (Ch. 114). Wyoming provided for the assessment of car companies by the State Board of Equalization (Ch. 140). Montana provided for the central assessment of the property of intercounty public utilities (Ch. 49).

Tax Administration.—Progress in the field of tax administration is evidenced by the creation of new state tax commissions and the enlargement of the powers of existing commissions, as well as by improvements in the laws relating to local assessment work. Alabama reestablished an appointive commission, and abolished its Board of Equalization. The new secretary of finance in Nebraska has functions similar to those of the tax commissions (Ch. 190). The State Board of Equalization of Utah was endowed with wide powers of assessment and control over local assessors (Ch. 114). North Dakota replaced her commission by a single commissioner (Ch. 213), and Wyoming replaced her commissioner with a State Board of Equalization (Ch. 135), but in each case enlarged powers were conferred on the new officials. The Indiana Commission is made a separate board, with increased power over local assessors, including the power of removal (Ch. 59). North Carolina made provision for the valuation of property under state supervision (Ch. 92). The Michigan commissioners will hereafter be the majority mem-

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

bers of the State Board of Equalization. Tennessee's Railroad Commission takes over the powers of the former Board of Equalization.

County supervisors of assessments are provided for in Alabama and North Dakota (Ch. 219), and the em-

ployment of experts is authorized in Arizona (Ch. 128), New York (Ch. 450) and Washington (Ch. 87). Several states increased the salaries of local assessors, but this action is less significant of progress in taxation than it would formerly have been.

BANKING AND CURRENCY

RAY B. WESTERFIELD

The Currency.—A comparative statement of the composition and quantity of the currency is given in the following table:

STATEMENT OF THE CURRENCY, 1918-19

	General Stock of Money in the United States (millions)		Held in the U. S. Treasury as Assets of the Government (millions)		Held by the Federal Reserve Banks and Federal Reserve Agents against the Federal Reserve Notes (millions)		Money in Circulation (millions)	
	Oct. 1, 1918	Oct. 1, 1919	Oct. 1, 1918	Oct. 1, 1919	Oct. 1, 1918	Oct. 1, 1919	Oct. 1, 1918	Oct. 1, 1919
Gold coin (including bullion in Treasury)	\$3,079.0	\$2,905.7	\$277.6	\$367.5	\$901.2	\$817.0	\$962.7	\$1,047.3
Gold certificates .....	.....	.....	.....	.....	197.4	244.2	740.0	429.0
Standard silver dollars	442.7	308.1	28.7	65.6	.....	.....	81.4	81.8
Silver certificates .....	.....	.....	.....	.....	.....	.....	330.7	159.1
Subsidiary silver	232.0	243.4	5.9	7.7	.....	.....	226.4	235.6
Treasury notes of 1890 .....	.....	.....	.....	.....	.....	.....	1.8	1.7
United States notes	246.7	346.7	8.2	17.9	.....	.....	338.4	328.7
Federal reserve notes	2,525.4	2,836.3	38.3	39.0	122.0	178.8	2,365.0	2,668.4
Federal reserve bank notes	42.7	251.2	0.2	49.5	.....	.....	42.5	201.7
National bank notes	721.9	721.4	20.9	68.8	.....	.....	709.9	652.6
Total currency	\$7,397.0	\$7,662.9	\$380.2	\$616.2	\$1,220.7	\$1,240.1	\$5,790.0	\$5,806.6
Per capita circulation .....	.....	.....	.....	.....	.....	.....	\$54.47	\$54.58

The following important changes in the condition of the currency during the year ending Oct. 1, 1919, may be noted:

(1) The total gold stock has decreased 175 millions, but there is an increase of 85 millions of gold in actual circulation. The gold holdings of the U. S. Treasury increased 90 millions, but those of the Federal reserve banks decreased 84 millions. Each of these results might have been expected when, after the dangers threatening the Federal reserve banks due to war-finance operations lessened, these banks slackened their campaign to gather the gold from circulation

and concentrate it in their vaults rather than in the Government Treasury where it would be less effective as reserve.

(2) Gold certificates in circulation decreased 311 millions, 47 millions of which shifted to the Federal reserve banks. The process represented is the substitution of Federal reserve notes for gold certificates by direct issue; it is a part of the plan whereby the Federal reserve banks acquire control of the gold holdings of the currency and financial system, and continues the operation of the previous year, when 873 millions of gold certificates disappeared from circulation.

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

RESOURCES AND LIABILITIES OF NATIONAL BANKS, 1918-19

	Aug. 31, 1918 (millions)	Sept. 12, 1919 (millions)	Per cent. Change
RESOURCES:			
Loans and discounts.....	\$9,507	\$11,090	+16.6
United States bonds and securities.....	2,455	3,296	+34.7
Other bonds and securities.....	1,794	1,806	+0.7
Due from Federal reserve banks.....	1,307	1,605	+22.8
Net amount due from national banks.....	1,196	1,268	+6.0
Net amount due from other banks, bankers, and trust companies.....	331	439	+32.6
Cash.....	364	440	+28.7
Customers' liability, under letters of credit.....	15	4	-73.2
Customers' liability under acceptances....	231	308	+33.3
Other assets.....	843	2,359	.....
Total.....	\$18,043	\$21,615	+19.8
LIABILITIES:			
Capital, surplus, and undivided profits....	\$2,282	\$2,438	+6.9
National bank notes outstanding.....	674	681	+1.0
Due to banks and bankers.....	2,885	3,066	+6.3
Individual deposits.....	10,492	13,095	+24.6
Letters of credit.....	21	10	-55.5
Acceptances based on exports and imports	243	323	+32.3
Other liabilities.....	1,443	1,012	.....
Total.....	\$18,043	\$21,615	+19.8
Liabilities for rediscounts.....	603	441	-26.8

(3) Partly as a result of these gold operations the Federal reserve notes have expanded 303 millions. To the amount that Federal reserve notes were substituted for gold or gold certificates the total currency has not been increased or reduced. Following the armistice the volume of Federal reserve notes in circulation decreased from 2,607 millions on Dec. 1, 1918, and 2,630 millions on Jan. 1, 1919, to 2,443 millions on Feb. 1; their volume was relatively steady around 2,500 millions until Sept. 1, when they started on an expansion. The volume was 2,561 millions on Sept. 1, 2,668 millions on Oct. 1, and 2,958 millions on Nov. 1. This autumnal expansion was due (1) to the speculative activity on the exchanges, which was much facilitated by the ease of borrowing on war paper and rediscounting it at the Federal reserve bank; and (2) to the normal increase in business activity at moving crops, etc. The contraction in December and January and the expansion in August, September, and October are satisfactory proofs of the elasticity which the Federal reserve note confers on our currency system. The volume of Federal reserve notes outstanding as reported weekly during August and September, shows the elasticity quite plainly:

	Aug.	Sept.	Millions
1.....	1		\$2,506
8.....	8		2,532
15.....	15		2,540
22.....	22		2,553
29.....	29		2,580
5.....		5	2,611
12.....		12	2,621
19.....		19	2,621
26.....		26	2,655

The expansion of these notes has occasioned some apprehension and discussion as to the advisability of raising the rediscount rates or of discouraging rediscounts of war paper, or of limiting more directly the volume of Federal reserve notes by legislation, as in the Meyers bill. (See *infra*.)

(4) The subsidiary currency has expanded from 226.4 to 235.6 millions, and the Mint after two very active years has been able again to increase the volume of this currency nearly to the saturation point.

(5) The silver certificates have fallen from 330.7 to 159.1 millions, but the Federal reserve bank notes have risen from 42.5 to 201.7 millions. The decrease of the one is explained by the increase of the other, for under the provisions of the Pittman Act (A. Y. B., 1918, p. 392) the silver certificates were to be withdrawn from circulation and their corresponding silver dollars melted to bullion for shipment to India, and Federal reserve bank notes

were to be issued in their stead. The one- and two-dollar denomination bills have come to consist largely of greenbacks and Federal reserve bank notes instead of silver certificates as formerly. The total net silver exports for 1917 were 31 millions; for 1918, 181 millions; and for 1919 to Nov. 1, 117 millions. The restrictions on the export of silver placed on Aug. 15, 1918, were removed on May 5, 1919, except that licenses for export have to be procured as before. The price of silver has been very speculative and subject to wide fluctuations; it rose as high as \$1.30½ on Nov. 10, and thus more than reached the ratio of 16 to one with gold, and the silver in the silver dollar reached a greater value than its face.

(6) The total volume of currency is only \$16 millions greater than a year ago and the *per capita* circulation differs only by a few cents. It reached its highest mark on Dec. 1, 1918, at

5,993 millions, with *per capita* circulation of \$56.23.

The National Banking System.—

The progress of the national banks is shown in the summary table above. These figures indicate a tremendous expansion for one year's time, the greatest increase ever shown in one year since the inauguration of the national banking system. The assets of the national banks alone exceeded the combined assets of all banks and trust companies in the United States as late as 1909. The expansion of deposits indicates great prosperity on a higher price level. The increase in deposits exceeded the increase on loans by 1.2 billions, and the ratio of loans to deposits fell from 68.37 per cent. to 66.45 per cent. The increase of deposits has been very general throughout the United States.

The geographical distribution of the national banks and their resources is shown in the following table:

Section	Number of Banks			Resources (millions)			Capital, Surplus and Undivided Profits (millions)		
	Aug. 31, 1918	Sept. 12, 1919	Change	Aug. 31, 1918	Sept. 12, 1919	Per cent. Change	Aug. 31, 1918	Sept. 12, 1919	Change Per cent.
New England	406	407	+ 1	\$1,276	\$1,495	+17.2	\$213	\$219	+ 2.8
Eastern states	1,644	1,648	+ 4	7,397	8,688	+17.5	873	936	+ 7.2
Southern states	1,592	1,596	+ 4	2,180	2,720	+24.7	333	342	+ 2.7
Middle states	2,131	2,152	+21	4,635	5,544	+19.6	557	602	+ 8.0
Western states	1,392	1,422	+40	1,265	1,513	+19.6	139	155	+11.3
Pacific states	558	581	+23	1,279	1,644	+28.5	157	173	+10.0
Island possessions	5	5	....	8	9	+12.5	1	1	.....
Total	7,728	7,821	+93	\$18,043	\$21,615	+19.8	\$2,273	\$2,439	+ 7.3

Deposits, Reserves, and Clearings of National Banks.—The deposits in national banks at the time of the Comptroller's calls were as follows:

	Nov. 1, 1918 (7,754 banks), millions	Dec. 31, 1918 (7,767 banks), millions	Mar. 4, 1919 (7,761 banks), millions	May 12, 1919 (7,773 banks), millions	June 20, 1919 (7,785 banks), millions	Sept. 12, 1919 (7,821 banks), millions
Due to Federal reserve banks	\$10	\$9	\$8	\$7	\$11	\$13
Net amounts due to national banks	1,125	1,248	1,233	1,197	1,134	1,208
Net amounts due to other banks	1,766	1,917	1,958	1,886	1,839	1,845
Certified checks outstanding	....	....	159	269	275	217
Cashier's checks outstanding	....	....	133	179	206	206
Demand deposits	8,640	9,460	8,558	9,103	9,106	9,757
Time deposits	2,372	2,473	2,652	2,729	2,784	2,921
United States deposits	1,136	313	591	530	566	518

1 Formerly included with demand deposits.

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

The reserves at the time of the Sept. 12 call were distributed as follows:

	Held		Required		Excess
	Millions	Per cent.	Millions	Per cent.	Millions
By banks in central reserve cities	\$465	13.78	\$439	13	\$59
By banks in reserve cities.....	266	10.15	260	10	11
By country banks.....	296	7.53	370	7	30
Total	\$1,229	10.02	\$1,170	....	\$103

To these excess reserves should be added the cash in vaults and the net amounts due from banks other than Federal reserve, for, though not legal reserve, they constitute additional working reserve. These were distributed among the three groups of banks as follows, in millions:

	Central Reserve	Reserve	Country Banks
Cash in vaults	\$97	\$116	\$225
Net due from banks	19	74	545
Total	\$117	\$590	\$770

The total clearings at reporting cities were for the week ending Oct. 18, in millions (see also XII, *Economic Conditions*):

States	1918	1919	Per cent. Change
Middle	\$4,881	\$5,652	+15.8
New England....	444	458	+ 3.2
Middle Western...	969	1,087	+12.2
Pacific	334	384	+14.7
Other Western....	478	517	+ 8.2
Southern	604	757	+25.3
Total	\$7,712	\$8,857	+14.8
New York City...	\$3,426	\$4,452	+29.9
Outside New York	\$3,640	\$4,029	+10.7

These figures indicate both that business activity is greater than a year ago and that business is being done on a higher price level.

State Banking Institutions in the Federal Reserve System.—During the year Oct. 1, 1918, to Oct. 1, 1919, there were admitted to the Federal reserve system 331 state banks and trust companies having resources of 1,968 millions. The system now includes, besides the national banks, 1,116 state institutions out of a total of 21,028 and with resources of 8,695 millions out of \$25,966 millions (the totals refer approximately to June 30, 1919). The Calder bill, having the approval of the American Bankers' Association, the U. S. Council of State Bank-

ing Associations, and the Federal Reserve Board and Council, was put before Congress early in the year. It provides that mutual savings banks may become members of the Federal reserve system upon approval of their applications by the Federal Reserve Board; instead of subscription to stock in the Federal reserve bank, they are to deposit three per cent. of their surplus fund and an additional sum not exceeding three per cent. upon call, and upon these deposits they are to receive 4½ per cent. interest. The bill has not been favorably acted upon to the end of the year.

Acceptances.—Not much progress has been made in the use of bank acceptances during the year. The acceptance liabilities of national and other member banks at the time of Comptroller's calls were as follows: (those of the leading cities being specially designated), in millions:

	Dec. 31, 1918	Mar. 4, 1919	June 30, 1919	Sept. 12, 1919
New York ...	\$120.9	\$112.8	\$107.0	\$128.5
Boston	44.2	41.7	49.4	57.6
Philadelphia ..	19.9	15.4	18.0	22.4
Pittsburgh	4.7	4.3	5.3	6.5
Cleveland	8.2	6.6	7.3	8.7
Richmond	4.8	4.4	2.5	3.0
Chicago	29.7	21.0	25.3	26.8
San Francisco...	9.6	11.9	10.6	17.2
St. Louis.....	11.8	11.9	6.9	5.5
Minneapolis ..	3.4	1.6	1.8	5.6
Portland, Ore..	3.3	2.9	1.7	2.1
All other cities	....	....	....	....
All national banks	\$305.1	\$269.2	\$272.0	\$323.2
Other member banks	175.5	182.1	194.5	....
Total	\$480.6	\$451.3	\$466.6	....

On the same dates, respectively, the Federal reserve banks reported the following holdings of paper bought in the open market: 292.2, 266.2, 315.9, and 335.3 millions. On June 30, of the 315.9 millions of acceptances held by the Federal reserve banks, 314.4 mil-

lions was bank acceptances, and of this amount 233.5 millions, or 50 per cent. of the total outstanding on that date, was member-bank acceptances; the rest was divided as follows: 38.6 millions of non-member-bank acceptances, 29.7 millions of private bank acceptances, and 12.6 millions of acceptances of foreign bank branches and agencies. The greatest reason for the failure of acceptances to make progress during the year has been the widely fluctuating but prevailingly high rate of interest on stock-exchange call and time loans. Banks or others having idle funds found higher return by loaning to stock-market operators than by purchasing acceptances. Banks also found ready funds at favorable rates by rediscounting war paper or their own notes secured by war securities, and therefore it was no advantage to hold acceptances for rediscount purposes. The acceptance market also suffered because so much of the banks' funds were tied up in Treasury certificates of indebtedness.

Continuous progress has been made, however, in the use of trade acceptances. In certain of the Federal reserve districts, as Cleveland, and in many trades, as flour, silk, and cotton, the acceptance is coming into more general use. The executive committee of the American Acceptance Council elected Paul M. Warburg chairman and opened offices and bureau of information in New York and a speakers' bureau. Local branches of the Council are being organized in the larger cities. The function of the Council is to promote the use of the trade and bank acceptance.

Some of the more important developments in the acceptance field during the last two years have been: (1) the organization and establishment of discount banks, such as the Foreign Trade Banking Corporation, the Discount Corporation of New York, the First National Corporation of Boston, etc.; (2) the fact that many security houses have begun to handle acceptances as a branch of their business; (3) the founding of acceptance houses, as the Foreign Credit Corporation of New York, after the London models, whose business it is to accept drafts of both foreign and domestic clients and to promote the financing of exports.

Discount Rates.—After the entry of United States into the war the Federal Reserve Board, from the necessities of the situation, utilized the resources of the banking system in every legitimate way to support war finance. The rate of discount at the Federal reserve banks was fixed to facilitate the placing of the Liberty Loans and payment of taxes and the stabilizing of the market for Liberty bonds. Differential rates were maintained in favor of borrowings by member banks on their own or their customers' notes, when secured by war obligations (*A. Y. B.*, 1918, p. 401). The reserve system proved itself eminently successful in these financial operations. With the cessation of the war exigencies the Treasury is withdrawing from the long-term loan market and reducing its requirements for short-term accommodations, and the discount policy of the Board will once more be fixed solely with a view to accommodating commerce and business. In repeated warnings during the year the Board has urged member banks to reduce their war paper and classify their loans and discriminate against those applications the purpose of which was to use the borrowed funds in speculative operations. But the caution was little heeded; speculative activity has proceeded beyond all precedent (see XII, *Economic Conditions*); high call and renewal stock-loan rates have made it very profitable to member banks to rediscount war paper or borrow on their collateral notes at the reserve banks' preferential rates. The result has been a considerable inflation of bank credits and notes and of speculation. The reserve against deposits and Federal reserve notes fell in October to the bare legal minimum. The Federal Reserve Board has hesitated to raise its discount rates because such action would tend to lower the price of Liberty bonds and also because it had agreed to provide preferential discount rates for war paper until the Victory note payments had been completed. On Nov. 3 it announced increases of one-fourth to three-fourths of one per cent. in discount rates; the largest increases applying to war paper. Although this reduces the margin of profit, it is doubtful how "effective" (in the sense of the term in London)

the discount rate will be in the market.

The estimated amounts of Liberty bonds, Victory notes, Treasury certificates, and war paper held by the banks of the country on June 30, 1919, were as follows, in millions:

Held by	Liberty Bonds	Victory Notes	Treasury Certificates	Paper War
National banks ..	\$770	\$405	\$1,000	\$1,400
Other member banks ..	293	192	360	645
All other banks ..	400	250	400	450
Total	\$1,463	\$847	\$1,760	\$2,495
Total outstanding	\$16,304	\$3,468	\$3,634	\$6,565

1 Estimated.

Branch Banks.—Expansion of the Federal reserve system in the matter of Federal reserve bank branches has been very marked during the past two years. The causes have been the greater operations of the Federal reserve banks, the growth of the par-collection system, and the increased appreciation of the service of the Federal reserve system by the members. There are now 22 such branches, of which five were opened in 1917, 11 in 1918, and six in 1919, and the Federal Reserve Board is considering further applications. The average monthly total expenses of running a branch bank has ranged from \$3,852 at Birmingham to \$12,317 at Pittsburgh, and the gross earnings of the New Orleans branch were highest at \$98,748 for the first half of 1919.

The cessation of hostilities has given greater opportunities for the establishment of branches abroad by state and national banks and has released for service abroad many bank men familiar with foreign business. The desire of the banks and manufacturers and exporters to keep and extend the war-born foreign trade has led to spirited attempts to found foreign branches. The banks, either national or doing business under agreement with the Federal Reserve Board, had on Sept. 1 branches in the following numbers, respectively: National City

Bank of New York, 42; First National Bank of Boston, one; American Foreign Banking Corporation, eight; Mercantile Bank of the Americas, two branches and a large chain of affiliated institutions in Spanish America; Asia Banking Corporation, six; International Banking Corporation, 25; Park-Union Foreign Banking Corporation, two.

The Federal Reserve Banks.—A consolidated statement of the 12 Federal reserve banks in mid-October, 1918 and 1919 is given on the next page.

It should be noted (1) that the total gold reserves of the system increased by 112 millions despite the adverse movement of gold from the country; (2) that the whole of the increase in bills discounted for members consisted of war paper, namely, 436 millions, thus tying up still more the bank funds in permanent obligations rather than in commercial paper (*A. Y. B.*, 1918, p. 397); (3) that the earning assets of the 12 banks increased 607 millions, thus adding to their prosperity; (4) that the uncollected items (deferred availability) increased, due largely to the broader reach of the par-collections system; (5) that the gross deposits increased 574 millions, of which 335 millions consists of reserve of member banks; (6) that the Federal reserve notes increased 250 millions and the Federal reserve banknotes 196 millions (for reasons see "Currency," *supra*); and (7) that the combined effect of the increase of deposits and notes was to reduce the gold reserve against them to the unprecedented figure of 46.1 per cent.

The total earnings of the 12 Federal reserve banks for the six months ending June 30, 1919, were 46.7 millions, compared with 24.8 millions for the corresponding period of 1918; the current expenses for the respective periods were 9.1 and 4.1 millions; and in addition, the expenses of the fiscal agent departments (these are reimbursable by U. S. Treasury) were 11.1 and 6.4 millions respectively. The net earnings were thus 37.6 millions, or at the rate of 92 per cent. per year on the average paid-in capital of 81.8 millions, compared with 55.9 per cent. in 1918 and 9.8 per cent. in 1917. These banks have therefrom come fully into

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

FEDERAL RESERVE BANKS

	Oct. 18, 1918 (millions)	Oct. 17, 1919 (millions)		Oct. 18, 1918 (millions)	Oct. 17, 1919 (millions)
RESOURCES			LIABILITIES		
Gold coin and certificates in vault	\$382.0	\$252.0	Capital paid in..	79.0	85.0
Gold settlement fund	416.0	461.0	Surplus	1.0	81.0
Gold with foreign agencies	5.0	107.0	Government deposits	179.0	133.0
Total gold held by these banks	\$804.0	\$820.0	Due to members, reserve account	1,506.0	1,841.0
Gold with Federal reserve agents	1,173.0	1,201.0	Other deposits...	112.0	101.0
Gold redemption fund	57.0	107.0	Collection items..	505.0	882.0
Total gold reserves	\$2,035.0	\$2,128.0	Total gross deposits	\$2,384.0	\$2,958.0
Legal tender notes, silver, etc.	52.0	70.0	Federal reserve notes in actual circulation	2,502.0	\$2,752.0
Total reserves.	\$2,087.0	\$2,199.0	Federal reserve bank notes in circulation (not liability)	55.0	249.0
Bills discounted secured by Government war obligations	1,262.0	1,698.0	All other liabilities	40.0	34.0
Bills discounted, all other.....	452.0	422.0	Total liabilities	\$5,063.0	\$6,161.0
Total bills discounted for members	1,687.0	2,121.0	Ratio of gold reserves to net deposit liabilities and Federal reserve note liabilities combined....	50.6%	46.1%
Bills bought in open market...	370.0	343.0	Ratio of total reserves to net deposit and Federal reserve note liabilities combined	51.1%	48.3%
Total bills on hand	\$2,058.0	\$2,464.0	Ratio of gold reserves to Federal reserve notes in actual circulation, after setting aside 35 per cent. against net deposit liabilities..	61.3%	57.1%
U. S. Government long-term securities	28.0	27.0	The degree to which the member banks are using the discount privilege with the Federal reserve banks is shown in the following table:		
U. S. Government short-term securities	67.0	269.0			
Municipal warrants	0.2	....		
Total earning assets	\$2,154.0	\$2,761.0			
Uncollected items	803.0	1,115.0			
Five per cent. redemption fund against Federal reserve bank notes	3.0	12.0			
All other resources	13.0	73.0			
Total resources	\$5,063.0	\$6,161.0			

their own and proved to be great profit-making institutions. Over 82 per cent. of the earnings of 1919, compared with 59 per cent. for 1918, came from bills, largely war paper, discounted for member banks; and the earnings from acceptances bought in the open market declined from 22.6 per cent. in 1918 to 11 per cent. in the following year.

Federal Reserve Bank of	Number of Member Banks in District on Aug. 31, 1919	Number of Member Banks Accommodated during August
Boston	429	243
New York	741	381
Philadelphia ...	670	389
Cleveland	835	213
Richmond	572	299
Atlanta	427	241
Chicago	1,364	468
St. Louis	528	135
Minneapolis ...	896	163
Kansas City....	1,014	295
Dallas	748	341
San Francisco..	680	242
Total	8,904	3,460

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

By an amendment of March 3 the banks were privileged to retain the Government's share of the net earnings beyond six per cent. and convert it into surplus until the surplus shall amount to 100 per cent. of the sub-

scribed capital stock of the bank; this was made retroactive to cover the half-year ending Dec. 31, 1918.

The following table shows the relative strength and activities of the 12 banks:

CONDITION OF THE FEDERAL RESERVE BANKS, OCT. 17, 1919
(In Millions of Dollars)

	Boston	New York	Philadelphia	Cleveland	Richmond	Atlanta	Chicago	St. Louis	Minneapolis	Kansas City	Dallas	San Francisco	Total
Total gold reserves.....	160	552	133	210	83	75	459	97	68	76	39	169	2,128
Bills discounted:													
Secured by government obligations	121	698	181	122	83	71	179	56	37	53	38	55	1,698
All others	12	116	25	24	18	35	46	26	21	48	23	22	422
Bills bought in open market	46	85	...	36	5	8	42	7	19	...	1	90	342
Total earning assets.....	202	974	237	209	119	130	312	108	87	123	75	179	2,761
Total resources.....	470	1,926	475	510	292	255	914	235	177	279	173	399	6,161
Capital paid in.....	7	22	7	9	4	3	12	4	3	3	3	5	85
Government deposits.....	12	45	10	13	1	5	12	6	4	7	4	10	133
Due to members—reserve account	122	752	104	133	56	47	258	63	53	85	51	110	1,841
Total gross deposits.....	219	1,043	213	227	140	97	335	133	79	155	96	162	2,958
Federal reserve notes in circulation	215	758	219	243	131	137	462	128	83	96	61	214	2,752
Federal reserve bank notes in circulation.....	21	52	27	22	10	13	40	16	7	17	9	10	249

Domestic Exchange and Collections.—The accustomed autumnal flow of funds to the interior has declined in recent years, until in September, 1919, the direction of the flow was reversed, and the supply of both call and time money in New York was measurably increased by an influx from the interior, the first time the West has had a surplus of loanable funds at crop-moving time. The reasons were that the banks of the West overestimated their needs for crop moving and accumulated too great surplus funds for this purpose. Their huge surplus has been built up through the great new wealth which the West gained during the progress of the war.

The controversy between New York bankers and those in other cities, particularly Boston, over collection charges on acceptances payable in the other cities, which was active in the summer of 1918 (*A. Y. B.*, 1918, p. 395), came into the forum again in February, 1919. Some dealers reported an unwillingness on the part of some New York banks to accept the

compromise method, used for some months, by which the Boston and other banks "got around" the charge imposed by the New York banks without acknowledging the principle of the justice of the charge. The Federal reserve system came to the rescue and arrived at a solution which bid fair to satisfy everybody; by it an acceptance payable in any Federal reserve city or branch thereof will immediately become available as cash reserve in any other reserve center throughout the system on the same date as maturity of the draft, through process of the Gold Settlement Fund. Proceeds of bankers' acceptances payable elsewhere than in Federal reserve or Federal reserve branch cities will be available, subject to payment, one or more days after maturity, according to published schedule. Not only does this settle the controversy, but it also helps to broaden the acceptance market throughout the United States.

The Federal reserve clearing system has continued to grow. The present situation is shown in the following table:

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

PAR COLLECTIONS

Federal Reserve Bank of	Number of Member Banks in District	Number of Non-Member Banks in District on Par List	Incorporated Banks Other than Mutual Savings Banks not on Par List
Boston	430	242	none
New York	744	319	none
Philadelphia ..	670	409	none
Cleveland	837	1,014	75
Richmond	573	418	1,026
Atlanta	431	349	1,217
Chicago	1,363	3,184	1,012
St. Louis	527	1,731	922
Minneapolis ..	899	1,485	1,384
Kansas City...	1,017	2,502	755
Dallas	748	392	822
San Francisco	681	917	149
	8,920	12,962	7,362

It will be observed that the non-par banks are largely in the South and Middle West. Besides the states in the first three districts, the following states have only par banks (Oct. 1): Maryland, Ohio, Kansas, Wyoming, Idaho, Utah, and Nevada; the first four of these came into the par list during September. The par list now includes 21,882 institutions out of a total of 29,244; a spirited campaign is on to make the list all-inclusive.

The clearings and transfers through the Gold Settlement Fund for 1919 will much exceed those for 1918; the totals are as follows:

	Millions
1915	\$1,052
1916	5,533
1917	27,154
1918	50,251
1919 (to Nov. 20)	64,025

The balance in the Fund at close of business on Nov. 20 was 449.7 millions, and in the Federal reserve agents' fund 833.5 millions.

State, Savings, and Private Banks, Loan and Trust Companies.—According to the State Bank Section of the American Bankers' Association, there are now in the United States, 21,028 state-chartered banking institutions, including commercial state banks, trust companies, and savings banks. The total resources of such institutions are 25,966 millions. This sum plus the resources of the 7,705 national banks, as of June 30, makes the

total banking resources of the nation 46,765 millions, in 28,733 banks. The increase shown by state banking institutions over the statement compiled in June, 1918, from the latest figures then available is 605 institutions, and 248 million capital, surplus, and undivided profits and 3,690 millions total resources. The above and following figures may be fairly said to average as of June 30, 1919. The following table presents the distribution of assets and liabilities:

	Millions
Capital	\$ 1,307
Surplus	1,332
Undivided profits	258
	\$ 2,899
Deposits	21,632
Loans and discounts	12,257
Bonds, stocks, securities, etc. ...	8,497
Total resources	\$25,965

Foreign Exchange and Gold Movements.—From Jan. 1, 1919, to Sept. 10 there was a net excess of exports of 152.8 millions of gold. This leaves a net excess of imported gold since Aug. 1, 1914, of 918.6 millions (see also XII, *Economic Conditions*; and XIX, *External Commerce*). Also there had been a net export of silver amounting to 109.4 millions since Jan. 1, 1919, and 389.1 millions since Aug. 1, 1914. The gold shipments have been mainly to Japan and South America and silver shipments to India and Hong Kong, with which places the balances of trade have been unfavorable.

With respect to Europe our favorable balance of trade has continued to be of huge proportions (see also XII, *Economic Conditions*), and exchange rates have fallen to unprecedented levels. On March 20 J. P. Morgan & Co. announced that they would no longer peg sterling exchange (*A. Y. B.*, 1918, p. 399), and they had ceased supporting franc exchanges a few days earlier. Exchange broke thereafter and, with some rallies, has sagged very low ever since. Various private and governmental measures have been taken to relieve the adverse position in which our exporters have been placed by the depreciated exchange. (1) the flotation of loans in the United States by Great Britain; (2) the establishment of export credits by Belgium; (3) the so-called "Davison plan" which was abandoned in favor of the "Edge

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

plan"; (4) the attempts at Federal legislation, chiefly the Edge bill, which provides for the Federal incorporation of one or more concerns to handle the composite commercial-financial business of the American export trade, with power to exercise the ordinary banking functions but also to advance cash to foreign purchasers of American exports on such security, say, as a foreign manufacturing plant, the new institutions to be subject to rules and regulations laid down by the Federal Reserve Board (see also XII, *Conduct of Business*); (5) the amendment of Sect. 25 of the Federal Reserve Act to the effect that national banks may invest up to five per cent. of their capital and surplus in the stock of concerns chartered under United States law and engaged in foreign or international financial operations relating to the export business (see also *infra*); (6) Senator Owen has continued to push the "Foreign Exchange Bank" project (*A. Y. B.*, 1918, p. 400). All legislation, however, has been held up by the long contest over the Peace Treaty.

On June 9 the Federal Reserve Board announced that it revoked, subject to certain exceptions, the control heretofore exercised over transactions in foreign exchange and over the exportation of coin, bullion, and currency; the exceptions applied to the exportation and importation of ruble notes, or exchange operation with Soviet Russia, and to exchange transactions with territories where operations of the kind were for the time being permitted only through the American Relief Administration. The control of gold and silver movement begun on Sept. 7, 1917, thus came to an end on June 30, 1919, as did also the control over exchange transactions begun on Jan. 26, 1918. The gold embargo had resulted in the issue of 1,142 licenses for shipping 152.3 millions of gold, about 1,500 licenses covering 502.7 millions of silver, and about 1,817 licenses covering 208.1 millions of currency other than U. S. gold and silver certificates. Some 755 applications of all classes were declined.

The Postal Savings System.—The Postal savings system developed little during 1919, as shown by the following table:

	Dec. 31, 1918	June 30, 1919
Total depositories in operation	6,567	6,439
Total deposits (exclusive of accumulated interest)	\$167,652,730.00	\$167,323,260.00
Number of depositors	593,772	565,509
Average principal per depositor	\$282.35	\$295.88
Funds deposited in banks	\$145,958,158.42	\$135,942,981.09
Funds invested in Government bonds	\$18,114,980.00	\$29,253,900.00

Two issues of postal savings bonds were made during the year, dated Jan. 1 and July 1, as follows:

Issue	Registered	Coupon	Total
16th	\$83,900	\$7,180	\$91,080
17th	95,320	7,820	103,140
Total ..	\$355,720	\$36,680	\$392,400

The ten leading states with respect to deposits on June 30, 1919, and the amount of the deposits in each were:

New York	\$46,110,244.26
Pennsylvania	17,198,630.60
Illinois	8,890,761.80
Ohio	7,942,968.41
Michigan	6,361,236.27
New Jersey	5,975,536.07
Massachusetts	5,107,507.10
Washington	4,222,433.13
Connecticut	3,445,511.95
California	3,027,401.22

The ten leading cities with respect to deposits on June 30, 1919 were:

New York, N. Y.	\$40,058,215.00
Brooklyn, N. Y.	12,611,149.00
Chicago, Ill.	7,743,441.00
Detroit, Mich.	5,614,034.00
Pittsburgh, Pa.	3,942,140.00
Boston, Mass.	3,141,614.00
Philadelphia, Pa.	2,697,086.00
Cleveland, Ohio	2,133,805.00
Newark, N. J.	2,116,739.00
Portland, Oregon	1,881,493.00

The kind and number of banking institutions qualified on June 30, 1919, as depositories for postal savings funds were as follows:

National banks	3,239
State banks	1,161
Savings banks	271
Trust companies	531
Private banks under state supervision	9
Total	5,211

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

The Federal Farm Loan System.—

In its annual report submitted to Congress on Dec. 31, 1918, the Farm Loan Board recommended that amendments be passed to change from \$10,000, to \$25,000 the maximum loan permitted, to change from \$500 to \$100 the minimum amount, and to permit it to write fire insurance on farm property. A statistical statement issued in this report said that eight per cent. of the proceeds of loans were used to buy land; 10 per cent. for buildings and improvements; 60 per cent to pay off existing mortgages; 10 per cent for payment of other debts; five per cent. for purchase of bank stock; four per cent. for purchase of live stock; and three per cent. for implements and equipment.

Up to July 1 the total amount of mortgage loans closed since the establishment of the system was 234 millions, to 91,472 farmers. The grand total of loans closed to June 30 was distributed among the 12 districts as follows:

	Millions
Omaha	\$32.8
Spokane	32.0
St. Paul	30.3
Houston	25.6
Wichita	21.2
St. Louis	18.2
New Orleans	16.3
Louisville	15.7
Berkeley	12.5
Columbia	12.3
Baltimore	8.6
Springfield	8.3
	<hr/> \$234.4

Numerous joint-stock land banks have been established during the year. Under date of July 9 the Farm Mortgage Bankers' Association reported that there were 21 such chartered banks and that 100 other applications were being considered. The 21 banks are in 12 states, considerably concentrated about Iowa, and therefore limiting their loan area to 20 states and leaving a monopoly to the Federal land banks in 28 states. Various issues of joint-stock land bank bonds have been sold, largely through syndicates. The bonds are five to 20 years in term and bear five per cent. interest, tax-free; they sell above par so as to yield 4.50 to 4.65 per cent. to the optional date and five per cent. thereafter.

The initial subscription of capital

stock in the Federal land banks amounted to \$9,000,000 and was made by the Government. The growth of loans has resulted, on account of the provisions requiring five per cent. contributions to stock, up to Oct. 1 in increasing the capital of these banks to \$21,000,000, and in repaying to the Government \$626,321 of the capital originally subscribed.

The Federal Land Bank of Houston was the first (October, 1918) to declare a dividend. It was followed by the bank of Spokane in April, 1919. The Spokane Bank dividend amounted to \$60,000 and was distributed among 400 farm-loan associations, which farther distributed it among their 10,000 stockholders. Using the one per cent. spread between their loan rate and the bond rate, the Federal land banks in about a year and a half prior to Oct. 1, 1919, not only wiped out their impairment of capital, but accumulated a surplus of more than \$740,000 after paying dividends of \$324,919. This proves conclusively that the system is a financial success and can be made self-supporting on less than a one per cent. margin. The declaration of dividends will further the system, for borrowers will no longer fret about purchasing non-dividend-paying stock.

In June an offering of \$54,000,000 of 4½ per cent. farm-loan bonds was made through the Federal land banks direct and through a syndicate of bankers. They were issued at 100½ and interest, netting 4.38 per cent. to optional date and 4½ per cent. thereafter. The tax-exemption feature of these bonds has continued to be the center of attack by the Farm Mortgage Bankers' Association and Senator McFadden and others in Congress. Suit was started in behalf of the Kansas City Title and Trust Co. to determine the constitutionality of the Farm Loan Act, but the U. S. District Court on Oct. 31, 1919, dismissed the suit, thus in effect establishing the validity of the Act and all of its provisions.

Federal Legislation.—The Platt amendment to the Federal Reserve Act became law on Sept. 5. It authorizes national banks, without regard to the amount of capital and surplus, to invest, with the permission of the Federal Reserve Board and under condi-

tions laid down by it, an amount not exceeding in the aggregate five per cent. of their paid-in capital and surplus in the stock of one or more corporations chartered under the laws of the United States or any of the states thereof and, regardless of location, principally engaged in such phases of international or foreign financial operations as may be necessary to facilitate the export of goods, wares, or merchandise from the United States, or any of its dependencies or insular possessions, to any foreign country; provided, however, that the total of such investments by any one bank shall not exceed 10 per cent. of its capital and surplus. The Act also provides that banks operating branches abroad are subject to the call of the Comptroller of the Currency for information concerning the condition of such branches, and, likewise, every member bank investing in the capital stock of banks or export corporations shall be required to furnish information concerning the condition of such bank or corporations to the Federal Reserve Board upon demand, and the Federal Reserve Board may order special examinations of these branches, banks, or corporations at its discretion. The purpose of this Act was to provide export facilities and to get the banks interested in export credits and thus to raise the exchange rates from their present low status.

On Oct. 2 another amendment sponsored by Senator Platt became law. It permits national banks to lend to the extent of 25 per cent. of their capital and surplus (instead of 10 per cent. as formerly) on shipping documents, warehouse receipts, etc., based on cotton and live stock, provided the actual market value of the pledged property shall not be less than 115 per cent. of the loan.

An amendment enacted on March 3 provides that the Government's share of the excess profits of the Federal reserve banks above the six per cent. dividend to member banks shall be turned into surplus until the surplus fund of the respective banks equals 100 per cent. of their paid-in capital stock, this provision being retroactive to cover Dec. 31, 1918, and providing that after the surplus fund has reached 100 per cent. of capital, 10 per

cent. of net earnings shall be put yearly into surplus. Section 10 of the Federal Reserve Act was amended to prohibit the Secretary of the Treasury, the Assistant Secretaries of the Treasury, and the Comptroller of the Currency from holding any office, position, or employment in any member bank during the time they are in office and for two years thereafter, and to prohibit the members of the Federal Reserve Board in like manner during the time they are in office or during the time for which they are appointed.

The amendment of Sept. 7, 1916, was further amended to the effect that upon the affirmative vote of not less than five of its members the Federal Reserve Board may permit Federal reserve banks to discount for any member bank notes, drafts, or bills of exchange bearing the signature or indorsement of any one borrower from 10 per cent. up to but not more than 20 per cent. of the member's capital and surplus; provided, however, that all such notes, drafts, or bills of exchange shall be secured by not less than their face amount of bonds of the United States issued since April 24, 1917, or certificates of indebtedness of the United States. An act was also passed amending Section 5172 so as to permit the issue of small-denomination circulating notes.

Many other measures have been before Congress:

(1) The Myers resolution, July 29, requested the Committee on Banking and Currency to report to the Senate whether it was advisable for Congress to enact any legislation to provide for a gradual reduction of the amount of money in circulation. This called forth from Governor Harding of the Federal Reserve Board a strong letter defending the expansion of the Federal reserve notes and advising against any restrictive legislation. The Myers resolution was part of the campaign to reduce the price level.

(2) It was proposed that Sec. 25 of Federal Reserve Act be amended to permit national banks in cities of more than 100,000 and possessing a capital and surplus of \$1,000,000 or more to establish not more than 10 branches within the domiciling city, provided the state law permits state banks and trust companies to found

branches, and then only in such number as is permitted to the state institutions.

(3) The Committee on Federal Legislation of the Savings Bank Section of the American Bankers' Association proposed two amendments to the Federal Reserve Act: (1) to Sect. 9, authorizing mutual savings banks without capital stock and savings banks with capital stock enough to make them eligible to become members under existing law to join the Federal reserve system, provided the surplus of the mutuals and the aggregate of the capital and surplus of the joint-stock banks is equal to the amount of capital stock required of national banks in such places; and (2) to Sec. 19, authorizing the Federal Reserve Board by regulations to prescribe the conditions under which a time deposit may be classed as a savings account or savings deposit, and providing that two-thirds of the three per cent. required reserve carried against savings deposits may consist of Liberty bonds or Treasury certificates of indebtedness.

State Legislation.—Probably the most noteworthy state legislation is that of North Dakota under the Non-Partisan League. One of many socialistic bills passed provides for a state-owned bank, capitalized at \$2,000,000, the funds to be obtained by the sale of state bonds. It is to be the sole depository of public moneys and the reserve agent of all state banks. Private deposits are to be received, and as an inducement to deposit, these deposits are made tax-free. The bank may purchase out of its deposits the bonds which make up its capital stock. The bank is empowered to make loans to the State Industrial Commission and to conduct a rural-credits department by issuing bonds against real-estate mortgages. Suit has been brought by a group of 40 taxpayers against the state officials, seeking to enjoin them from diverting funds raised by taxes to private uses. The Scandinavian-American Bank of Fargo was closed on Oct. 2 by the State Banking Board and was declared insolvent, with excessive loans, on very inadequate security, chiefly to the Non-Partisan League and its affiliated institutions.

The Ohio banking law was completely overhauled and codified. The most important changes are to prohibit unauthorized banking by defining the term bank; to make inspection, supervision, and regulation more effective by increasing the responsibility of directors and by requiring them to respond to calls and regulations of the superintendent of banks; to prohibit the establishment of any new private banks and setting higher minimum capital requirements for existing private banks; to limit foreign-exchange business to banks, railroads, steamship, and express companies and to require a \$50,000 bond of these and to require them to designate the agents of the company authorized to receive money for this purpose. Under the Walker Act the Pennsylvania Banking Department was reorganized, higher salaries were provided, building and loan associations were made subject to examination, etc. New York passed (1) a bad-check law (Ch. 314, 1918); (2) the Marshall-Cheney Act (April 10), authorizing state banks in New York to exercise fiduciary powers, thus placing them on the same plane with national banks and trust companies; (3) the Marshall Act (Feb. 26), authorizing state banks and trust companies which are members of the Federal reserve system to carry their reserves with the Federal Reserve Bank and exempting it from the state law governing reserves; (4) an amendment to Ch. 369 of the Laws of 1914, Sec. 190, to permit purchases of stocks of foreign investment companies licensed to do business in the state and to allow an investment company to deposit funds in its subsidiaries in which it owns a majority of the capital stock; (5) an act (March 13) empowering the superintendent of banks to examine at least once a year the trust department of every national bank that has been permitted by the Federal Reserve Board to act in a fiduciary capacity; (6) and an act (March 7) permitting the opening of branches by banks in cities of 50,000 or more inhabitants, instead of 1,000,000 as formerly.

North Carolina authorized her state banks that become members of the Federal reserve system to carry

the same reserves as are required of other members, and authorized her state banks and trust companies to accept drafts or bills of exchange drawn upon them. South Dakota permitted her banks and trust companies which become members of the Federal reserve system to be examined by the Federal Reserve Board, and authorized the state authorities to disclose to the Board all information relative to such banks and trust companies. Tennessee passed the law recommended by the Federal Reserve Board to bring about a better coördination of the powers of state and national banks and to promote uniformity of state and Federal banking laws. Similar legislation, in whole or part, was passed by West Virginia, Colorado, Iowa, Nebraska, Ohio,

Oregon, California, Delaware, Maine, Vermont, Washington, Alabama, and other states. Many states authorized their institutions to join the Federal reserve system. Another line of legislation was to protect trust funds in the hands of national banks as trustees and to enable them to do fiduciary business; New Hampshire, California, Pennsylvania, Vermont, and other states passed such laws. Oregon authorized her state banks which are members of the Federal reserve system and have capital and surplus of \$1,000,000 or more to invest in stock of companies engaged in foreign banking. California authorized state commercial banks and commercial departments of departmental banks and savings banks to rediscount with the Federal Reserve Bank.

LIFE INSURANCE

WENDELL M. STRONG

General.—The years 1918 and 1919 in life insurance contain so much out of the ordinary, in (1) the effect of the influenza epidemic, (2) the unexampled growth of the business in 1919, (3) the final chapter on war mortality, (4) the Government war-risk insurance, (5) the reduction in dividends, (6) the depreciation of securities, and (7) the completion of a great *American Mortality Table*, that features ordinarily worthy of more than brief comment must be passed over in this review. It may be said, however, that as 1918 in its slight increase of policy loans and in its other features showed healthful tendencies, these have been continued through the year 1919.

Effects of the Influenza Epidemic.

—The death claims from the influenza epidemic began to assume importance in September, 1918, and in a few weeks reached an enormous volume. The maximum came about the beginning of the winter, after which there was a gradual decrease, although claims were still very heavy in the early months of 1919. If we compare the amount paid as death claims for the year 1917 with that of the year 1918, the excess amount paid in the latter year gives a fair approximation to the death claims due directly or indirectly to influenza in 1918, par-

ticularly since it is known that up to the time of the outbreak of the influenza the year 1918 was a favorable one in mortality. For the companies reporting to the State of New York, the death claims (not including industrial insurance) for the year 1917 were about \$189,000,000. For the year 1918 they were \$272,000,000, an increase of about \$83,000,000, or well towards 45 per cent. Although the figures for 1919 are not yet compiled, it is known that the ravages of the influenza during the first few months were severe, so that the total of 1919 will be very high, though probably not as high as in 1918. Even the comparison of the figures of total claims incurred does not adequately show how much the influenza meant to the companies, for the reason that deaths from influenza were mostly at the younger ages, where the policies had been but a short time in force and consequently had but a small reserve, whereas most deaths occur at comparatively high ages, after policies have been many years in force and have accumulated a very much larger reserve. Although the total loss from influenza will be divided in the statistics between the years 1918 and 1919, the loss really was that of one season, the fall and winter season of 1918 and 1919, and was practically all em-

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

braced in a period of six months. The influenza mortality was an important factor in the reduction by a number of important companies of dividends to policyholders in the year 1919, and it will be an important factor in further reduction in the dividends payable in 1920. No such pestilence has been known since the plagues of centuries ago, and the fact is impressive that it should be felt by policyholders only in a moderate reduction of dividends.

New Business.—The year 1919 has been as remarkable for increase in new business as was the winter season with which it began for unprecedented mortality. The previous decade had shown an increase in new issues in each year over the preceding with scarcely a setback, but these increases from one year to the next had been measured by a small percentage, although the cumulative effect was large; the new issues of 1918, for example, were less than 18 per cent. greater than those of 1917 but were nearly 90 per cent. greater than those of 1914. The increase of 1919 over 1918 corresponds rather to the increase of a period of former years than to a single year, and it may reach from 75 per cent. to 85 per cent. This means that the increase alone in new issues is more by hundreds of millions than the total new issues of any year prior to 1917.

Although various causes have contributed more or less to this increase, the writer believes the fundamental cause to be the shrinkage of the dollar. If the insurance in force at the end of 1918 is compared with that in force at the end of 1914, we find a 40 per cent. increase in the number of dollars, but if the value of the dollar is taken into account, we find a real decrease; thus in real value the country has less insurance than some years ago, and the enormous new issues are necessary to catch up. As applied to the individual, the shrinkage of the dollar increases the new issues in two ways: first, the man who five years ago required \$10,000 to protect his family will now, with the fifty-cent dollar, require \$20,000 to furnish the same protection, and is consequently in the market for \$10,000 more insurance; second, the young man, perhaps just

married, taking out his first insurance will now require \$10,000 where \$5,000 would have seemed sufficient a few years ago. Among other causes which have contributed to the increase are to be counted the influenza, which brought to everyone a realization of the suddenness with which death may come even to the young and vigorous; the demobilization of the Army, which has increased the numbers of the insuring public; the Government war-risk insurance, which made the idea of insurance more familiar to a large part of the population and which also set a high standard of amount to be carried by the average man; and the increasing use of insurance for business purposes, such as the furnishing of ready cash to pay large inheritance taxes, the protection of a corporation against the loss entailed by the death of one of its valuable officers, and the protection of employees by group insurance.

An incident of the flood of new business was that the New York statute limiting the amount that could be written in a year by any one company had to be modified to prevent its putting an arbitrary stop to the writing of insurance by many companies in the state.

War Mortality.—Death losses due to the war may be divided into two classes, (1) those of persons who lived in some one of the countries which entered the war at or near the beginning and (2) those who were resident in the United States. It was to be expected that companies having a considerable European business in force would suffer heavily in losses among the first class. The chapter is now near enough completion, though there are many losses still to be reported, particularly for German and Austrian policies, for it to be safe to state that total losses are small compared with those expected early in the war. No figures have been made public by the companies, but it is possible to give the figures as of Nov. 26, 1919, of one company having a large European business, namely, the Mutual Life Insurance Co. of New York.

At the beginning of the war the Mutual Life had in force in the countries which early entered the war, including Canada, nearly \$200,000,000

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

STATISTICS OF UNITED STATES LIFE INSURANCE COMPANIES

(Insurance Year Book)

YEAR	Number of Companies	END OF YEAR			Total Income ² (millions)	Total Payments to Policyholders ² (millions)	Total Disbursements ² (millions)	New Business ³ (millions)	Amount in Force at End of Year ³ (millions)
		Admitted Assets ² (millions)	Surplus ¹ (millions)	Premiums Received ² (millions)					
1918	223	\$6,427	\$709	\$1,081	\$1,335	\$711	\$995	\$4,708	\$24,287
1917	223	5,915	748	928	1,248	590	845	3,982	22,024
1916	232	5,550	702	846	1,124	555	790	3,274	19,854
1915	235	5,190	663	784	1,042	544	767	2,643	18,351
1914	250	4,940	665	743	938	510	708	2,507	17,381
1913	259	4,658	624	715	925	468	659	2,533	16,588

¹ Includes amounts set apart for dividends to policyholders during following year.

² Includes industrial business. ³ Does not include industrial business.

of insurance. Its total deaths classed as war claims from these countries up to November, 1919, were a little under \$2,000,000, that is, about one per cent. of the business in force and about two per cent. of the total death claims of the company for the period of the war. It is to be noted, however, that this company was peculiarly circumstanced in that it had withdrawn from Prussia in 1895, the rest of Germany in 1904, and France and Italy in 1906, so that at the outbreak of the war a larger proportion of its insured in these countries were beyond military age than if it had written new business up to the beginning of hostilities. The experience of the United States business shows a total amount of war death claims a little larger than that above mentioned, namely, about \$2,-

200,000, the total of all being somewhat over \$4,100,000. It is estimated that the final figures will increase this by more than \$500,000. These figures, both for other countries and for the United States, include all deaths in service and also deaths of those not in service which were traceable to the war. Inasmuch as a large proportion of the deaths in service were from disease, and many of these would in any case have occurred, the total overstates the deaths that would be properly attributable to the war were it possible to determine these exactly. Thus, of "war claims" for United States residents nearly two-thirds of the deaths were from disease, influenza and pneumonia alone accounting for considerably more than direct war casualties.

SURRENDERS, LAPSES, LOANS, AND DIVIDENDS ¹

(New York State Report)

YEAR	Number of Companies	Amount in Force, End of Year (millions)	Amount of Policies Surrendered (millions)	Amount of Policies Lapsed (millions)	Amount of Policies Expired (millions)	Amount of Policies Decreased (millions)	Total Amount of Policies Terminated (millions)	Policy Loans, End of Year (millions)	Dividends to Policyholders (millions)	Amount Paid for Surrendered Policies (millions)
1918	35	\$20,161	\$269	\$448	\$146	\$225	\$1,437	\$713	\$127	\$90
1917	34	18,422	234	397	143	152	1,238	711	130	93
1916	35	16,784	341	384	170	62	1,208	693	119	100
1915	35	15,632	390	433	152	58	1,268	691	106	113
1914	35	14,933	362	427	123	57	1,198	657	104	102
1913	24	14,304	339	383	106	44	1,079	614	96	87

¹ Life companies reporting to New York State only; industrial business not included.

Government Insurance for Soldiers and Sailors.—The Government life insurance for those in service reached a maximum of about forty billion dollars (not including the insurance analogous to workmen's-compensation insurance furnished free by the Government), an amount more than that in force at the end of 1918 in all the life-insurance companies and in all the fraternal and assessment societies of the country combined. Notwithstanding the efforts of the Government, heartily backed by the representatives of the life-insurance companies, to induce those leaving the service to continue this insurance in force, about 75 per cent. of discharged service men have already allowed it to lapse. Although this is unfortunate, the great purpose of the insurance, to furnish protection during the war to those in the Army and Navy, has been fulfilled. That the same service could not under any possibility have been furnished by private agency is shown by the fact that the cost up to Dec. 1, 1919, has been over a billion dollars in claims, to which must be added expenses, the amount of which can in no way be ascertained because in large measure charged to departments other than the Bureau of War-Risk Insurance, as against premium receipts of not over \$350,000,000. There has been much dissatisfaction over alleged delay in paying allotments to families of soldiers, which was a task imposed on the Bureau of War-Risk Insurance, and in answering inquiries, and although death claims appear to have been promptly settled, this dissatisfaction has undoubtedly been one of the reasons for the rapid lapse of the insurance. Another reason is that the Government insurance, instead of being "insurance without agents," as thought by some, was a most extreme example of "high-pressure" methods of writing insurance, which always means a high lapse rate, since many of those taking the insurance do not want it. In the efforts to have as much as possible continued, it is being made easy for those who have lapsed to reinstate, and there are also pending propositions to change the method of payment from an income to the beneficiary over a period of years to a

one-sum payment when desired by the insured.

Dividends.—Dividends to policyholders were reduced by many companies in the year 1919. In 1920 there will be more reductions, so that, although many companies will avoid reducing their dividend scale, both the years 1919 and 1920 will be known in the future as years of dividend reductions. The foremost cause for this was the influenza losses. In addition, however, taxes were greatly increased, many companies suffered considerably from the depreciation in securities, and nearly all companies in 1919 have written so great an amount of new business as to cause a considerable drain on surplus. The new business will eventually pay for itself but not for a number of years, and meanwhile funds to carry it have to be advanced from the general surplus of the companies.

Depreciation of Securities.—In large part the securities held by life-insurance companies are not affected for the purposes of these companies by market fluctuations. Mortgages, while good, can be carried at par. Bonds payable at a definite time and not in default can be valued by the amortization method. Bonds in default, however, perpetual bonds, and stocks must be valued at market value. The years 1918 and 1919 have shown extremely low market values, so that for the report of the year 1918 the insurance commissioners adopted an average schedule of market values which could be used instead of the actual values as of Dec. 31. They are also taking similar action for the year 1919. Besides the fact of extremely low market values for securities, the year 1919 shows many defaults, particularly in street-railway bonds. (See also XII, *Economic Conditions*.)

American Mortality Tables.—A great work has just been finished in the construction of new mortality tables from the combined experience of 60 leading insurance companies of the United States and Canada, including all the largest companies. The most important of these tables is the "American Men" table giving the United States experience. The *American Experience Table* has been for many years the most widely used mor-

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

UNITED STATES INDUSTRIAL INSURANCE COMPANIES (Insurance Year Book)

YEAR	Number of Companies	New Business (millions)	Insurance in Force at End of Year		Premiums Received (millions)	Losses Paid (millions)
			Number of Policies (millions)	Amount (millions)		
1918	30	\$1,143	\$41	\$5,703	\$318	\$135
1917	27	1,050	38	5,223	303	84
1916	28	998	35	4,811	275	76
1915	33	973	33	4,434	254	70
1914	31	861	31	4,163	237	64
1913	31	850	29	3,977	218	60

tality table for insurance purposes in the United States. It has been known for a long time that this table showed too high a mortality at the younger ages. At the request of the National Convention of Insurance Commissioners, the Actuarial Society of America undertook in 1915 the preparation of a new American table from the statistics of the insurance companies. The statistics were of the mortality for the years 1900 to 1915, so that the data on which the table was based were all recent but did not include the influenza period. The resulting table of mortality shows, as was expected, a very much lower mortality than the *American Experience Table* for ages below 50 and from the age of 50 on a close correspondence to the rates given in that table.

Death of John R. Hegeman.—With the death of John R. Hegeman, president of the Metropolitan Life Insurance Co., there has passed the last of the little coterie of great pioneers of life insurance in the United States. Identified with the Metropolitan as vice-president and president for nearly

50 years, he played a large part in the development of industrial as well as ordinary insurance, and saw his company grow from a very small company to the greatest in insurance in force and the second greatest in assets among the life-insurance companies of the world.

Industrial Insurance.—While in both the years 1918 and 1919 there was an increase in the new business in industrial insurance, as shown by the table above, that increase, particularly in 1919, being of a good amount, it is in no such proportion as the increase in new business in ordinary life insurance.

Fraternal Insurance.—The statistics for the six years 1913 to 1918 show no tendency to an increase in either new business or amount in force in fraternal orders. They suffered from the influenza epidemic in increased death rate as did the old line companies, but because of the differences in their organization and method of collecting payment, it was a more serious matter to the fraternal orders.

UNITED STATES FRATERNAL ORDERS (Insurance Year Book)

YEAR	Number of Orders	Assessments (millions)	Total Income (millions)	Claims Paid (millions)	Total Disbursements (millions)	Assets, End of Year (millions)	New Business (millions)	Number of Certificates in Force, End of Year (millions)	Amount in Force, End of Year (millions)
1918	542	\$140	\$155	\$118	\$137	\$270	\$834	8	\$8,838
1917	533	140	155	97	134	280	822	7	9,129
1916	523	133	146	107	130	250	1,155	8	9,162
1915	472	122	133	98	123	212	922	7	8,694
1914	498	125	144	98	121	189	1,079	7	9,171
1913	509	129	144	101	121	183	1,065	8	9,622

PROPERTY AND CASUALTY INSURANCE

S. S. HUEBNER

Fire and Marine Insurance.—According to the *Insurance Year Book*, 725 fire and fire-marine insurance companies and Lloyd's associations transacted business in the United States during 1918, as compared with 692 in 1917, 663 in 1916, 659 in 1915, and 633 in 1914. The capital stock of these companies and associations totalled \$131,221,000, an increase of 3.4 per cent. as compared with 1917, which year in turn represented an increase of nearly 7.5 per cent. as compared with 1916. The total assets, exclusive of premium notes, of \$1,212,248,000 showed a gain of \$118,884,000, or nearly 11 per cent. This gain compares with 110 millions during 1917, 94 millions during 1916, 60 millions during 1915, 26 millions during 1914, and 17 millions during 1913. In other words, the gain in assets for the two years 1917-18 amounts to nearly 1.2 times the total increase of the preceding four years, 1913-16.

Net surplus amounted to \$389,920,000, a slight loss of \$18,278,000 as compared with 1917. But the net surplus for 1917 showed a gain over 1916 of \$52,178,000, or 14.7 per cent., whereas for 1916 there was a gain of \$25,889,000, or 7.7 per cent. over the preceding year. The shrinkage in the surplus during 1918 was due in the main to the exceedingly low range of security values prevailing for bonds and standard railroad stocks. The

decline would probably have been greater had it not been for the substantial increase in rates in 1917 on certain classes of business, with the result that during the year net premiums were increased by the huge amount of nearly \$159,000,000 and total income by \$184,000,000. During 1918 net premiums showed a further large increase of \$71,392,000 and total income of \$60,279,000. In 1917 the gains from net premiums and other income much more than offset the total increase in disbursements of \$106,000,000. During 1918, however, disbursements showed another large increase of \$72,147,000, owing mainly to rising expenses of \$47,519,000 and increased losses of \$23,029,000. This increase in total disbursements, it should be noted, exceeds the increase in total income by \$11,868,000.

Net premiums and total income show increases during 1918 of 10.7 per cent. and 8.2 per cent., respectively. These gains compare with increases of 31.1 per cent. and 33.4 per cent. for 1917, and with 17 per cent. and 30 per cent. for 1916. Paid-for losses show an increase of \$23,029,000, whereas the increase for 1917 was the enormous amount of \$72,767,000, and for 1916, \$23,678,000. Total disbursements increased \$72,147,000, as compared with \$106,630,000 for 1917 and \$51,811,000 for 1916. Of the total disbursements, the amount paid

FIRE AND MARINE INSURANCE COMPANIES 1

YEAR	Number of Companies and Lloyds	Capital (thousands)	Total Assets Exclusive of Premium Notes (thousands)	Net Surplus (thousands)	Net Premiums (thousands)	Total Income (thousands)	Paid for Losses (thousands)	Paid for Dividends (thousands)	Paid for Expenses (thousands)	Total Disbursements (thousands)
1918	725	\$131,221	\$1,212,248	\$389,920	\$737,854	\$794,376	\$346,391	\$46,878	\$253,593	\$676,863
1917	692	126,880	1,093,361	408,198	666,462	734,097	323,362	45,279	206,074	574,716
1916	663	118,094	983,032	356,020	507,523	550,010	250,545	42,537	175,005	468,086
1915	659	107,674	888,700	330,353	433,995	474,626	226,867	29,839	159,568	416,275
1914	633	105,670	828,187	292,454	405,975	440,733	228,215	33,786	144,638	406,640
1913	645	105,195	801,918	291,192	385,367	421,598	204,797	34,266	143,033	382,097
1912	621	96,944	784,478	292,893	371,626	410,760	190,073	32,526	136,738	359,338
1911	621	97,703	754,344	283,201	358,623	392,966	184,917	33,291	129,474	347,683
1910	628	94,918	713,138	263,867	352,436	385,657	168,433	35,905	124,878	329,218
1909	636	87,638	668,194	243,414	333,862	365,264	156,369	31,217	116,964	304,552

for losses constituted 53.5 per cent.; dividends, 7.3 per cent. and expenses, 39.2 per cent. The respective ratios of these three items to disbursements in 1917 were 56.1 per cent., 7.9 per cent., and 35.9 per cent.; in 1916, 53.4 per cent., 9.0 per cent., and 37.4 per cent.; and in 1915, 54.3 per cent., 7.1 per cent., and 35 per cent. It is worthy of note that for 1918 the ratio of expenses to total disbursements was 39.2 per cent., as compared with 35.9 per cent., in 1917, 37.4 per cent. in 1916, and 35 per cent. in 1915.

The annual report of the New York Insurance Department for 1918 also makes a similar showing. Here it is explained that 257 fire and fire-marine insurance companies writing fire and fire-marine insurance in New York State had aggregate assets on Dec. 31, 1918, of \$1,008,129,553, an increase of \$111,401,466 as compared with 1917. The total liabilities of these companies, excluding capital stock, amounted to \$605,818,367, an increase of \$75,334,903. The report also shows the total income to have been \$688,350,756 and the total disbursements \$560,127,303. In summarizing the situation for the year the report concludes:

The business of fire insurance, all things considered, continued with rather favorable results despite the unusual hazards due to war conditions. The premium income was materially augmented owing to temporary rate increases in many sections of the country and largely because of advances in values of the property insured. Not yet having received the annual statements from all the companies, it is impossible to compare the losses of 1918 with those of previous years, but the reports thus far filed indicate that the increase in the fire-loss ratio is less than the corresponding increase in premiums. . . .

The underwriting gain of the 283 fire, fire-marine, and marine insurance companies reporting to the Department for the year 1918, based on earned premiums, is found to be \$38,850,039; the gain from investments of the above companies, \$29,424,021; total gain, \$68,274,060; from which must be deducted the loss in surplus of \$37,766,451 from dividends declared, balance of remittances to and from home offices of foreign fire and marine companies of other countries, and changes in special reserves, making a total net gain in surplus of \$30,507,609 for 1918, as against a total net gain in 1917 of \$9,279,610.

The following table shows the combined risks and premiums of American

and foreign companies operating in the United States for the past 10 years, as reported by the *Insurance Year Book*:

	Amount Covered (000 omitted)	Premiums Charged (000 omitted)	Rate per \$100
1907 ..	\$35,375,319	\$402,874	\$1.1389
1908 ..	37,155,734	417,671	1.1241
1909 ..	39,951,263	442,415	1.1074
1910 ..	43,123,801	464,616	1.0774
1911 ..	46,776,992	491,072	1.0612
1912 ..	48,840,386	514,594	1.0536
1913 ..	52,856,280	544,836	1.0308
1914 ..	56,012,859	570,687	1.0189
1915 ..	58,867,095	588,701	1.0000
1916 ..	63,355,299	628,209	0.9915
1917 ..	72,331,660	698,276	0.9654
1918 ..	63,083,104	638,106	1.0115

Aggregate combined risks of 63 billions represent a decrease of nearly 13 per cent., as compared with an increase of 14.3 per cent. in 1917 and 7.6 per cent. in 1916. The average rate of premium per \$100 of insurance is reported at \$1.0115, as compared with \$0.9654 in 1917, \$0.9915 in 1916, and \$1.000 in 1915.

The growing volume of property insurance in the United States is well explained by the Superintendent of Insurance of New York in his annual report for the two years 1917-18 as regards the business done by all fire, fire-marine and marine companies making returns to his Department. From these reports it appears that in 1917, 280 companies were covering nearly 82 billions of risk at the close of the year, and that during the year these companies undertook for \$1,003,000,000 in gross premiums to carry nearly 122 billions of risk, thus charging an average premium of about \$0.823 for every \$100 of insurance. In 1918, however, the risks in force at the end of the year amounted to over 91 billions, and during the year 283 companies undertook for \$1,150,557,234 in gross premiums to carry nearly 175 billions of risk, or at an average premium of about \$0.657 for every \$100 insured.

Fire Losses.—Heavy fire losses remained an adverse factor in the fire-insurance business. The Year Book for 1918 (p. 410) called attention to the heavy increase in fire losses during 1917. The paid-for losses during that year showed an increase of \$72,-

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

FIRE LOSSES

	1915	1916	1917	1918	1919
January	\$20,060,600	\$21,423,350	\$36,431,770	\$37,575,100	\$41,446,325
February	13,081,250	24,770,770	29,587,660	20,688,155	26,891,950
March	18,786,400	33,630,250	17,523,000	20,293,980	22,201,900
April	18,180,350	12,681,050	13,597,225	20,108,900	15,484,750
May	11,388,450	15,973,500	24,968,800	20,545,900	16,516,300
June	10,893,950	12,247,500	15,513,270	24,890,600	20,475,750
July	9,006,800	23,013,800	16,143,050	24,537,000	24,526,000
August	10,067,100	10,745,000	21,751,100	31,476,650	24,526,000
September	14,823,500	12,544,625	13,814,490	13,434,300	29,083,500
October	14,465,850	17,701,375	26,384,450	75,412,300	13,358,400
November	21,204,850	19,898,450	20,198,025	12,333,750	23,450,800
December	20,877,100	22,063,325	25,300,300	15,737,750	27,366,500
Total	\$182,826,200	\$231,442,995	\$267,213,140	\$317,034,385	\$269,000,775

\$17,000, as compared with an increase of \$23,678,000 in the preceding year. The total fire waste for the country during 1918, as compiled by the *Journal of Commerce*, amounted to \$316,954,385, as compared with \$267,273,140 in 1917, an increase of 18.7 per cent., and an average annual loss of about \$220,000,000. The significance of the 1918 increase is especially apparent when we recall that 1917 showed a loss of no less than 15.6 per cent. in excess of that recorded for 1916, and 1916 in turn showed losses of 26.5 per cent. in excess of those recorded for 1915. (See also VI, *Fire Prevention*.)

During the first nine months of 1919 fire losses averaged nearly as high as the showing made during the corresponding period of 1918, the total waste amounting to \$204,825,075, as compared with \$215,470,585, a decrease of less than five per cent. The accompanying table, compiled by the *Journal of Commerce*, presents the total monthly fire waste for the last five years.

Removal of Surcharge in Fire Insurance.—Among the most important events of the past year in fire insurance was the abrogation of the 10 per cent. surcharge on fire insurance to take effect on Sept. 1, 1919. In making its recommendation the Surcharge Committee of the National Board of Underwriters pointed out that the surcharge was originally an emergency measure, intended only to be temporary, and as the high level of costs appeared likely to continue for a long time, the Rating Bureau would find it necessary to revise rates on unprofitable classes and in unprofitable localities, with a view to secur-

ing a sufficient premium income to the companies. It might be added that the abrogation at this time was due largely to the clamor of the insured public and the recommendation of the insurance commissioners.

Underwriters Excess Association.—In February, 1919, the so-called Underwriters Excess Association became a going concern. The Association at that time had 117 members, and its writing capacity on any one risk was \$1,000,000. It will deal only with surplus or excess amounts which it is impossible to place through the regular company and agency channels, and the commission on the excess cover placed through the Association is limited to five per cent.

Riot and Civil-Commotion Insurance.—Although it is impossible to present any statistics on the matter, there has been a very noticeable increase in the volume of so-called riot and civil-commotion insurance. Moreover, the subject has been discussed a great deal in the insurance press of the country. With the signing of the armistice on Nov. 11, 1918, the need for protection against loss or damage by war, invasion, military or usurped powers, or bombardment, virtually ceased. But it soon became apparent that a new danger existed, which has been gradually gathering force to an alarming extent. Accordingly a new form of protection was anticipated by the members of the Explosion Conference, and on Dec. 28, 1918, a new policy, known as riot and civil-commotion insurance, was offered to the public. The contract protects against direct loss or damage by, (1) riot, (2) insurrection, (3) civil commotion, including strikes, (4) explosions di-

rectly caused by any of the foregoing, and (5) explosions occurring from causes other than above described (excluding fire resulting from such explosions, such loss being paid by the fire policy), whether originating on the premises of the assured or elsewhere.

Marine Insurance.—The marine branch of the insurance business, judging from the returns of companies confining themselves entirely to this branch of underwriting, experienced somewhat less satisfactory progress during 1918 than was the case during the preceding year. The extent of activity may be judged by the showing of the 46 marine companies reporting to the Insurance Department of New York State, although it should be noted a large number of fire-marine companies reporting to this Department also write marine risks. According to the report, the 46 marine companies had marine risks in force at the close of 1918 of \$2,189,747,585, an increase of 853 millions, or nearly 64 per cent., over the total volume of insurance outstanding at the close of 1917; the latter year represented an increase of 9.2 per cent. over 1916. The present volume of 2,195 millions is nearly three times the volume of 1914, the year preceding the Great War (678 millions). Premiums received increased from \$28,013,171 at the close of 1915 to \$42,137,536 at the close of 1916 (50 per cent.) and to \$64,287,632 during 1917, or another annual increase of 52 per cent. During 1918 however, premiums written amounted to only \$56,568,503, a decline of \$7,719,000, or 12 per cent. as compared with 1917. This decline, despite a great increase in volume of risk, is attributable mainly to the virtual cessation of war-risk business, which was written at very high premiums, and to greatly increased competition. Paid-for losses, however, show an increase of 15 per cent., from \$26,669,219 to \$31,351,690, and it is important to note that this increase comes on top of the very extraordinary increase of 57.4 per cent. during 1917. The continuing heavy losses are largely traceable to the payment of deferred claims which were incurred during the late war period, many of which hung over until 1918 before final settle-

ment. Total income decreased during the year from \$78,243,615 to \$71,110,918, or 9.1 per cent., but as against this decrease it is essential to recall the huge increase during the preceding year, from \$50,829,694 to \$78,243,615, or 54 per cent. In view of the heavy increase in paid-for losses and a decrease in the total income, the net surplus declined from \$35,645,675 to \$33,028,707, or nearly seven per cent. This moderate decline must again be viewed in the light of the very large increase during the preceding year, namely, from \$24,964,801 to \$35,645,675, or nearly 43.4 per cent.

According to the annual report of the New York superintendent of insurance, the volume of marine and inland risks written in the state during 1918 by fire and fire-marine companies was \$33,519,731,458, as against \$11,834,758,740 in 1917 and \$2,535,376,232 in 1916. The huge increase is, of course, due mainly to greatly increased values and to the application at the same time of two forms of insurance to the same subject-matter, namely, ordinary marine insurance and war-risk insurance. Marine and inland premiums received in New York State during 1918 amounted to \$91,422,494, and the losses paid to \$47,944,139, thus indicating an apparent net excess of marine and inland premiums over losses incurred of \$35,885,699. To show that the business was not as profitable as in the preceding year, it should be pointed out that the excess of premium income over losses was \$49,671,974 in 1917. As indicating the new factors that confront the marine insurance business, now that war conditions have ceased, the superintendent of insurance of New York reports the following:

War-risk insurance, while an important factor in the premium income, practically ceased with the declaration of the armistice except for the hazard of floating mines, so that to-day the business has reverted to competitive conditions which will demand the most earnest attention of competent and experienced underwriters in order to obtain a reasonable return on the capital invested. Ante-war conditions will in a measure prevail for some time, and heavy loss ratios will certainly result if, in the desire to keep up premium income, risks are assumed without discrimination and unless the companies have a clear appreciation of the substandard condition of many of the vessels now in

active ocean-going service. American companies have entered the field to such an extent as to become keen competitors of foreign underwriters. This is a desirable undertaking and in the interests of American shippers, who have heretofore found it necessary to obtain much of the required insurance coverage abroad.

Congressional Investigation of Marine Insurance.—With the cessation of hostilities, and the return of competitive conditions, American marine insurance naturally became the subject of immediate concern on the part of those who are interested in keeping alive the numerous new companies, which entered the field during the period of the war. As a result, a comprehensive investigation of the entire subject was entrusted to a special subcommittee of the Committee on the Merchant Marine and Fisheries of the House of Representatives. The investigation, which has been conducted since July, has for its fundamental aim the adoption of permanent and constructive legislation. To quote the original announcement of the committee:

It will investigate the capacity of existing American marine-insurance companies to carry the risk of such insurance on the greatly augmented merchant marine of the country, and the possibilities of their expansion financially in order to assume such responsibility. It will compare methods of insurance, and the character and terms of the respective policies of insurance issued by American companies and those of Great Britain and other maritime countries. In short, it intends exhaustively to review the entire subject so that necessary legislation may be enacted to permit the American merchant marine, when it has reached its full development, to have the benefit of insurance written mainly by American companies and backed by American capital.

American Foreign Insurance Association.—The American Foreign Insurance Association, created within the year, consists of 20 leading American fire and marine insurance companies, incorporated in the United States and owned and managed by Americans, as distinguished from companies incorporated in the United States and purchased or controlled by foreign insurance companies. As stated in its constitution, the purpose of the Association is to "perfect, maintain and operate an organization for the development, extension and proper conduct of fire and marine insurance

and the allied branches of fire and marine insurance in territory other than the North American Continent, Cuba, Porto Rico, West Indies, Newfoundland and Hawaii." In other words, the purpose of the Association is to put American fire and marine insurance upon the world's map in competition with the companies of other nations.

Every member must participate in all writings, losses, and expenses according to the percentage assumed by such member in either the fire or marine departments. Each member is under obligation to use all honorable means to advance the interests of the Association in its expressed purposes, and no member is allowed directly or indirectly to write or assume any business of the classes in which it participates in the territory operated by the Association except by way of participation through the Association. Should any reinsurance treaties conflict with this expressed purpose, provision is made for the cancellation of them by a certain stipulated date. Withdrawal from the Association is permitted subject to at least six months notice in advance, but in the meantime nothing shall relieve the withdrawing company from assuming its percentage of the obligations of the Association.

Casualty, Surety, and Miscellaneous Insurance.—An examination of the accompanying table, giving the aggregates compiled in the *Insurance Year Book* for stock companies transacting casualty, surety, and miscellaneous insurance in the United States, shows a remarkable record of growth during 1918. The capital of the 201 companies listed shows an increase of 25.3 per cent.; the total assets, of 23.2 per cent.; net surplus over capital and liability, of 14.6 per cent.; net premiums, of 24.5 per cent.; total income, of 28.4 per cent.; and payments to policyholders, of 16.3 per cent. The remarkable development of these forms of insurance is further indicated by the record of the past decade, 1909-18. During these 10 years total assets have increased from 266 millions to 852½ millions; net premiums, from 81 millions to 305 millions; and total payments to policyholders, from 32 to 123 millions.

XIII. PUBLIC FINANCE, BANKING, AND INSURANCE

CASUALTY, SURETY, AND MISCELLANEOUS INSURANCE IN THE UNITED STATES 1

(Insurance Year Book)

YEAR	Number of Companies	Capital (thousands)	Total Assets (thousands)	Net Surplus Over Capital and Liabilities (thousands)	Net Premiums (thousands)	Total Income (thousands)	Total Payments to Policyholders (thousands)
1918	201	\$92,239	\$87,466	\$87,989	\$304,613	\$350,696	\$122,744
1917	181	74,272	692,194	76,796	241,514	257,517	104,986
1916	192	74,987	642,621	84,178	199,062	220,620	89,370
1915	178	78,023	603,669	78,034	160,319	174,891	75,444
1914	200	78,221	544,957	74,213	153,955	162,029	71,341
1913	188	77,835	530,766	66,724	140,811	157,128	68,545
1912	186	71,052	410,521	61,544	124,198	138,279	55,901
1911	196	64,679	359,160	69,127	104,338	118,981	47,668
1910	177	65,485	309,715	78,176	94,395	111,041	41,465
1909	175	59,454	265,804	59,748	80,900	87,504	32,334

1 Business transacted by stock companies.

Liability and Compensation Insurance.—The extent of employers' liability and workmen's-compensation insurance is indicated by the premiums written and losses paid by 55 companies writing liability contracts and 43 companies transacting workmen's-compensation insurance. According to the *Insurance Year Book*, the liability premiums of these companies for 1918 amounted to \$65,790,706, the losses paid to \$26,623,329, and the ratio of losses to premiums to 40.5 per cent. For 1917 the corresponding figures were \$51,791,032, \$24,034,260, and 46.3 per cent. On workmen's-compensation policies the premiums amounted to \$96,688,476, in 1918, the losses paid to \$38,767,179, and the ratio of losses to premiums was 40.1 per cent. For 1917 the corresponding figures were \$79,209,346, \$38,127,758, and 50.2 per cent. for stock companies and 36.9 per cent. for mutual companies.

In addition to the foregoing, the following record of legislative acts deserves notice in this field of insurance (see also XV, *Labor Legislation*):

(1) The passage of an elective workmen's-compensation law by Tennessee, effective July 1. The system is administered by the courts and covers all injuries except those due to the employee's willful failure or refusal to use a safety appliance or to perform a duty required by law. Compensation is based on 50 per cent. of average weekly earnings for the

year previous to the accident, but not more than \$11 or less than \$5 or full wages per week.

(2) The adoption of a workmen's-compensation law by Missouri. This act provides for elective compensation covering all employments with five or more employees, and compensation is on the basis of 66⅔ per cent. of the average earnings. The waiting period is one week of disability; and administration of the system is entrusted to a commission. It should be said that the law is at present in the courts and is not in practical effect because of the general contention of business interests that it is invalid.

(3) Adoption of a workmen's-compensation law by Alabama. The act is elective and is administered by the courts. Compensation is on the basis of 50 per cent. of the wages paid.

(4) Adoption of a workmen's-compensation law by North Dakota. Unlike the other three acts adopted during the year, this act is compulsory. It is administered by a commission. Compensation is based on 66⅔ per cent. of the wages paid, and insurance is limited exclusively to a state fund.

Aside from the adoption of the above mentioned Acts, the most important event in workmen's-compensation insurance during 1919 was the organization of the National Council on Workmen's Compensation Insurance. This Council will be composed of the various boards and bureaus having charge of the regulation of

workmen's-compensation insurance in the various states. According to the constitution of the Council, its objects are the following:

(1) Collect and compile experience for rate-making purposes. (2) Establish classifications for rate making, and rules and procedure governing the application of same. (3) Establish basic pure premiums and formulate fundamental general principles applicable to all states for translating such pure premiums into rates. (4) Establish rating plans for the purpose of modifying manual rates on individual risks. (5) Assist its members in deciding questions concerning manual rates, rules, classifications, and rating plans. (6) Encourage and assist in the organization of non-partisan bureaus for rate regulation for states where the laws require or permit the organization of such bureaus.

Through amendments various changes were made in existing compensation acts during the year. Suffice it to say that these changes tended generally toward increased liberality, such as the extension of the act to include industrial diseases, the increasing of the percentage of wages paid, and the reduction in the waiting

period before compensation commences. (See also XV, *Labor Legislation*.)

Accident and Health Insurance.—

The accompanying table, compiled from data furnished by the *Insurance Year Book*, shows the premiums, losses, and loss ratios in the accident-and health-insurance business for the past 10 years. Accident premiums written by companies during 1918 total \$45,858,462, or \$2,282,658 more than the total reported for 99 companies in 1917. The ratio of losses to premiums also showed a substantial decline, namely from 49.3 per cent. in 1917 to 45.1 per cent. In health insurance the premium income of companies, writing health insurance separately, totalled \$9,290,586, a loss of \$376,456 as compared with the total for 43 companies reported for 1917. The loss ratio increased tremendously to nearly 64 per cent., the highest on record for the years covered in the accompanying table, and compared with 49.3 per cent. in the preceding year.

ACCIDENT AND HEALTH INSURANCE

	ACCIDENT INSURANCE			HEALTH INSURANCE		
	Premiums	Losses	Ratio of Losses to Premiums (per cent.)	Premiums	Losses	Ratio of Losses to Premiums (per cent.)
1918	\$45,858,462	\$20,661,296	45.1	\$9,290,586	\$5,946,793	64.0
1917	43,575,777	21,529,738	49.3	9,653,042	4,769,648	49.3
1916	43,043,546	19,159,523	44.5	9,292,065	4,501,239	48.4
1915	36,977,988	17,197,415	46.5	7,891,030	3,705,713	46.9
1914	36,524,812	16,304,776	44.7	7,594,840	3,533,656	46.5
1913	31,522,481	15,581,224	45.0	6,928,735	3,156,227	47.0
1912	29,702,473	13,408,552	45.0	6,339,406	3,126,160	49.0
1911	27,351,626	11,837,347	43.2	7,101,666	3,314,301	46.6
1910	23,894,667	10,068,926	42.1	6,451,028	2,770,744	42.9
1909	21,446,506	8,248,182	38.4	5,714,579	2,173,386	38.0

On March 8, 1919, the Health and Accident Underwriters Conference held what is probably the most important session in its history. Two measures of importance were adopted. First, the monthly-premium health and accident companies pledged themselves to collect the first month's premium in addition to the policy fee. As pointed out in the *United States Review*, the custom in the past has been to give the agent practically the first month's premium for writing the business. Under the new Federal

taxes the companies are required to pay the Government 20 per cent. of the first month's premium, which under the former system was not received by them. In addition to this action the uniform classification manual, in preparation for about two years, was adopted by the Conference, with arrangements for furnishing it to both conference and non-conference companies on a royalty basis designed to provide sufficient funds for keeping the manual revised and continuously up to date.

Fidelity Insurance and Corporate Suretyship.—The combined results in the fidelity and surety business during 1918 show premiums received of \$30,068,000, losses paid of \$8,578,000, and a ratio of losses to premiums of 28.3 per cent. These figures compare with 1917's premiums of \$29,124,000, losses paid of \$7,983,000, and a ratio of losses to premiums of 26.8 per cent. The results of this business for the past ten years are indicated by the following table compiled from the *Insurance Year Book*:

	Premiums (thousands)	Losses (thousands)	Ratio of Losses to Premiums (per cent.)
1918	\$30,068	\$8,528	28.3
1917	29,124	7,983	26.8
1916	25,882	6,768	26.3
1915	22,732	7,321	32.0
1914	21,270	7,975	37.5
1913	20,627	6,947	34.6
1912	19,243	5,192	27.0
1911	16,958	4,980	29.3
1910	15,473	2,814	18.1
1909	13,283	3,200	24.0

The most notable event in this branch of the insurance business is the proposed uniform surety law presented by the special Committee on Fidelity and Surety Companies of the National Conference of Insurance Commissioners and the companies' representatives. The report of the Committee relates to the unifying of the laws of the states as regards capital and surplus, the making of deposits, rates and rating associa-

tions, the limiting of risk, and the unearned premium reserve. The Committee recommended that "the various commissioners give consideration to the subject matter of its report and the proposed standard section appended thereto, to the end that if possible the various states may shortly have a uniform law on the subject."

Miscellaneous Forms of Insurance.—The importance of the remaining forms of insurance is indicated by the following table, which represents the 1918 record for the nine leading kinds of insurance coming under the head of "miscellaneous," as regards premiums received, losses paid, and the ratio of losses to premiums. The total premium income for all these types of insurance aggregated \$40,117,007, and total losses paid amounted to \$16,318,422. Exclusive of live-stock insurance (not recorded in the *Insurance Year Book* prior to 1917), the aggregate figures for 1918 for the eight leading types of insurance under this heading show an increase of 16.2 per cent. in premiums received and 20 per cent. in the losses paid. These increases are significant in that they follow advances of 28 per cent. and 37.2 per cent. during 1917 as compared with the preceding year. With the exception of workmen's collective insurance, the premiums written show a substantial increase in all instances. Workmen's collective insurance, it should be noted, also showed a decline during 1917.

MISCELLANEOUS INSURANCE IN THE UNITED STATES, 1918 1

TYPE	Number of Companies	Policies Written	Losses Paid	Loss Ratio (per cent.)
Plate glass	37	\$7,636,113	\$3,600,957	47.1
Burglary and theft	38	7,786,099	2,869,485	36.8
Steam boiler	12	4,263,564	427,741	10.
Flywheel	10	491,479	90,141	18.3
Credit indemnity	4	1,857,058	194,181	10.5
Automobile and teams property damage	50	16,045,419	7,907,105	49.3
Workmen's collective	18	294,694	150,125	51.
Sprinkler leakage	2	448,993	361,912	80.6
Live stock	8	1,363,588	716,775	52.6

1 Table based on information compiled by the *Insurance Year Book* for 1918.

XIV. SOCIAL AND ECONOMIC PROBLEMS

ORGANIZED SOCIAL WORK

WILLIAM T. CROSS

Current Tendencies.—Social work, considered as a practice, has received a fair share of influence from the Great War and its aftermath to date. As a technique of adjustment of individuals and families in distress, it has played rather the rôle of benefactor. The processes which had been perfected painstakingly in the experience of associated charities, children's-aid societies, and like organizations suddenly found during the war an exhausting outlet in foreign relief undertakings and in the spread of standard practice of the Red Cross and other agencies to all communities in America. As a process of advancement through education, social work again seems to have given more than it has received. Its data on living conditions, its knowledge of special classes in society, and its methods of research were invaluable to Government departments and to the mammoth voluntary undertakings of the war period. Here, however, it has been also largely a recipient. From the tremendous mobilizations of 1917 and 1918 it gained an impression of power and a knowledge of its potentialities in the economic world which are distinctly noticeable in current discussions. New ideas of publicity and propaganda were developed. The achievement of widespread results through legislation and through community organization is now more nearly within reach.

In the realm of ideals of reform, on the other hand, social work has stood to gain at every turn of events, national and international, which revealed more of the hidden bases of human misunderstanding and unrest or which tested the foundations of established institutions. The conditions of the submerged classes in foreign lands are matters of common

attention and study. The activities and pronouncements of labor groups, and particularly the reconstruction programme of the British Labour Party, have been widely observed. Furthermore, hundreds of trained workers from the United States have had opportunity to try abroad, at least in limited ways, the methods and measures current here. These experiences, together with the general trend of thought in the direction of internationalism, have borne to leaders in social reform a suggestion of universal applicability of the procedure of social work that is a distinct acquisition. The most outstanding event in harmony with this tendency, perhaps, was the organization at Paris in May, 1919, of the League of Red Cross Societies. This is recognized to have grown directly out of American experience, as it was initiated through leadership from this country (see also *infra*). Another example occurred at the series of regional meetings in connection with the Children's Year programme of the Federal Children's Bureau, at which addresses were made by a number of foreign experts (see also *Child Welfare, infra*). The final feature was an international congress in Washington at which a series of minimum standards of child welfare were agreed upon (see *ibid.*).

At the close of the year 1918 occurred the United War Work Campaign (*A. Y. B.*, 1918, p. 423). The seven dominant national organizations that joined in this financial drive and other prominent agencies of the war days carried over certain valuable experience in organization, which in turn has been enlarged with the opening up of wider opportunities. They have acquired new ideas of the possibilities of their established work

when adequately supported. This has resulted generally in the promulgation of new reconstruction programmes and in their seeking independently larger funds than before the war. As an example, the War Camp Community Service, maintained during the war through coöperation of the Playground and Recreation Association with the War and Navy Departments for the welfare of soldiers and sailors (*A. Y. B.*, 1918, p. 426), has been succeeded by Community Service, Incorporated (see also *Recreation*, *infra*). The object of this post-war activity, as stated in its charter, is "the development in all American cities, through public and private agencies and by every appropriate means, of better moral and industrial conditions, health and welfare, play and recreation, higher and more adequate community and neighborhood expression, and a better social life."

A distinct problem of post-war policy in social work is involved in these developments. National war-time agencies with ample funds were set to work speedily upon problems that were novel and for the most part involved in the mobilization of armed forces. The readaptation of their machinery and programmes to conditions of peace calls for greater attention to the differentiation of their activities in American communities and for a basing of appeals for money on a different set of motives in the giving public. With such considerations in view the National Conference of Social Work provided for calling a representative conference, not yet held, "of national social and civic organizations to consider the correlation of efforts of these agencies and national budget planning."

Of no slight significance for the development of social work during the year has been the growing interest in Americanization (see also *Immigration*, *infra*; and XXX, *Education*). For this popular term is substituted, in naming one of the divisions of discussion of the National Conference of Social Work, the less patronizing phrase, "uniting native and foreign-born in America." For organized social work this movement has been profitable in that it has directed upon a problem which is essentially one of

social adjustment almost universal public attention. Starting as a matter of patriotic interest and of bearing on the effects of the Great War, it has appealed to all groups and classes, has called forth programmes from both labor and capital, and has affected the activities of both public and private agencies. It has emphasized strikingly the importance of the educational system in the work of social betterment. Through the discussion that has resulted of the importance of common language in Americanization, as, for example, in having foreign-language workers on the staffs of welfare agencies, it has given emphasis to sympathetic dealings with all special classes. This contribution toward genuine fellow-feeling in social work has been increased by the greater recognition now being given to reciprocal values in the heritages of customs and traditions which immigrants bring. An example of this is the course of lectures offered in 1919 by the College of the City of New York on the social and cultural backgrounds of 22 foreign peoples helping to make up the population of the metropolis. Above all, however, in the effects of the Americanization movement in the field of social betterment, may well be named the value of attempts to define Americanism. Immigrant protective societies, chambers of commerce, factory schools, and all other agencies that have undertaken work in Americanization have had to face the question as to what it is we are trying to give the newcomer. This makes for constructive social advancement. Incidentally, it is a primary aid toward defining the ends of social work in general.

The labor situation, however, has affected the tendencies of organized social work during the year probably more fundamentally than any other factor. In connection with the movement for improving the status of the working classes has occurred an unprecedented volume of discussion and action affecting that portion of the population toward whom humanitarian effort heretofore has been characteristically directed. The data most familiar to social workers concerning living conditions have been at the center of national debate. The valid-

ity or the defects of the claims of organized labor have been a direct challenge to social idealists. The more radical proposals of reform have challenged their liberalism and their inclinations toward constructive effort to a more concrete definition. On the side of sociological analysis, social workers have been called to a clearer application of scientific principles in humanizing industry. As an example of this may be noted Prof. Irving Fisher's presentation of seven fundamental human instincts as being at the basis of the psychology of labor, as follows: self preservation, workmanship, self-respect, loyalty, play, love of family, and worship.

The Standard of Living and Social Work.—The effects of the rising cost of living (see XII, *Economic Conditions*; and XV, *Labor*) on problems of social work have been one of the chief features of discussion and of determination of practical policy during the year. Charitable institutions universally have been compelled to revise their budgets of expenditure on this account. More than any other single factor in recent years, perhaps, it has been responsible for emphasis on economic phases of administration of charities. A waste-accounting system, on a basic ration-quantity plan, has been introduced by the Department of Corrections of the City of New York into institutions under its management. This is said to have improved the food value of meals to inmates and in addition to have reduced the food cost by \$60,000 during the first year of operation. The application of similar methods in the institutions of the state of New Jersey is reported to have resulted in a saving of \$143,000. The requirements of food economy have been emphasized in the administration of state agencies in a number of states. Basic ration-quantity tables have been prepared by the States Relations Service of the U. S. Department of Agriculture. A typical development of the same character among non-institutional agencies was the study of family budgets made during the year by the Chicago Council of Social Agencies in giving relief. Menus and food values were considered. Proper provision for housing, clothing, health, and other

items in the budget were defined. A general schedule of requirements for various members of the family was drawn up and the method of adaptation shown, as well as the requirements for revision with changes in market prices. In Baltimore a study of 8,663 families that had come to the attention of social agencies was reported during the year by the Bureau of State and Municipal Research. The result was a remarkable revelation of the economic status of needy families.

The vital bearing of the standard of living upon the whole programme of the public-health movement was stated recently by Prof. C. E. A. Winslow of Yale University as follows: "The more immediate goals of the health worker—efficient sanitary administration, infant-welfare stations, clinics and dispensaries, and even health insurance—are but palliative measures if it be true that a substantial proportion of our people are striving to live upon a family budget below the minimum essential for physical health." At the conclusion of an exhaustive analysis of standards of living in the United States reported by Commissioner Royal Meeker of the Bureau of Labor Statistics, U. S. Department of Labor, at the National Conference of Social Work, the situation so far as it affects measures of social betterment was summarized thus: "The incomes of the lower-paid workers must be increased, and the cost of food, clothing and housing must be lowered to enable these families to meet the higher costs of existence. Social legislation is needed to give them better and cheaper food, clothing, houses, medical treatment, and insurance." An outstanding feature of the 1919 meeting of the Conference was a symposium on the relations of the standard of living to health. The ideal held out was that there shall be no American family without income essential to the maintenance of health.

The programme of social work with respect to organized effort for individuals and families growing out of new knowledge regarding the standard of living may be said to include four lines of procedure. In the first place, budgets of relief societies and depart-

ments are being revised with a view to giving more adequate assistance to the impoverished; for other families with low income greater attention is being given by social agencies to the encouragement of wise expenditure. In the second place, the Government programme of thrift, under the leadership of the Treasury Department, emphasizing especially the importance of saving, is being carried forward into post-war applications affecting both general education and the policies of public and voluntary agencies. In the third place, unusual attention is being given the subject of marketing economies. Reports were made in the National Conference of Social Work on the development of the coöperative movement in the United States and in various foreign countries. At the time (June) three thousand coöperative societies were said to be in existence in all parts of the United States, the number reported having increased by 50 per cent. in two months. A secondary effect of this tendency has been the organization of councils on purchase of commodities by charitable agencies in Chicago, Cleveland, Louisville, and elsewhere. In the fourth place, the whole movement toward industrial reform has assumed an unprecedented importance in the thought and planning of social workers. The more technical side of this movement, as it concerns social work, is that of industrial management and of improvement in living conditions of working people. The more general issue is that of a different sharing of the fruits of industry between capital and labor.

Case Work and the Status of the Family.—Five lines of influence upon the condition of the American family through war-time developments were specified in the discussions of the National Conference of Social Work of 1919. They were: the establishment of new standards of public health, especially with respect to children and venereal disease; national prohibition; changes in the standard of living; the greater participation of women in industry and public service; and the movement toward sex equality. The changes that are in process as a result of these and other influences tend to take away important

causes of poverty and to broaden the resourcefulness of the family.

With regard to organized case treatment war measures, on the one hand, have altered individual habits, as, for example, in the matter of prohibition. Already some relief societies report a reduction in volume of work due to family disorders, traceable to the cutting off of drink. That opens the way to advancement for the constitutionally sound. And where the drink habit has been but the symptom of a psychopathic personality, the problem of diagnosis and treatment is clarified. On the other hand, the larger undertakings of governmental and voluntary agencies in dealing with people have brought an application of the case-work method which has meant both a recognition and a test of its validity. The Federal Board for Vocational Education, for example, in its dealing with 20,000 or more handicapped soldiers is represented as "taking as its starting point the man and his needs, and not the planning of the curriculum."

The operation of the entire series of movements or influences named has affected the conditioning environment of poverty and distress with which case work so largely deals. Enough of the stubborn barriers to family welfare have been surmounted by the adoption of new measures, or at least have been shaken by the social awakening of this period, to have raised in the Conference just mentioned the nice question as to whether or not case work might now be reduced to a minimum. This brought forth from the chairman of the programme on the family, Miss Joanna C. Colcord, a reply which summarizes excellently the effects in this department of social work of the unusual activities of the war time:

The near future will see many extensions, rather than reductions, in the practice of case work. One of the leading industrial reforms, workmen's compensation, is proving to be unworkable without it. The same, I think, will prove true of the placement work of the public employment bureaus. The increasing volume of marital discord shown in the records of our domestic-relations courts, cries aloud for case work; our rapidly advancing standards of child care are inextricably bound up with the family and with family social work. The public offices from which are granted marriage

XIV. SOCIAL AND ECONOMIC PROBLEMS

licenses and working papers to children are two of the spots which illustrate the urgent need for case work in new fields and under new auspices. There is a growing sentiment among the socially awakened that case workers need to be stationed at all the main gateways through which people pass in this complex society of ours, to see that adjustments are wisely and humanely made.

One of the most significant indices of advancement in the policy of local charity organization societies and in understanding of their technical problems of case work was the renaming in 1919 of their national society as the American Association for Organizing Family Social Work. It was called formerly the American Association of Societies for Organizing Charity.

The most important contribution that has been made during the recent period to the technique and content of case treatment has been the development of psychiatric social work. This practice received its main expansion through the use of so-called psychiatric aids in the Army. It treats the social causes of mental illness—hardship, immorality, etc. It has become the more easily recognized and understood because of its similarity to medical social work, in aiding physicians and helping patients make proper environmental adjustments. Although from the standpoint of psychiatry it is capable of a high degree of specialization, it has, in connection with the whole mental-hygiene movement, something to offer to the entire range of case treatment. It may furnish the psychology and field training for all case workers who wish to go beyond the level of intuitive psychology in dealing with their cases. (See also *Mental Hygiene*, *infra*.)

A concrete example of experience of the voluntary agencies for organizing family social work and for relief of distress is furnished in the report of the Charity Organization Society of Buffalo for the year ending Oct. 31, 1919. This is the oldest agency of the kind in the United States. The number of families cared for during this period is reported as follows:

Widows	360
Deserted wives	130
Aged persons	89
Families of delinquents.....	402
Unemployed men with families	89
Handicapped breadwinners	42
Sickness, other than tuberculosis....	512

Tuberculosis	167
Insanity, epilepsy, feeble-mindedness	106
Sickness, including tuberculosis and insanity, deducting duplications....	762

The influenza epidemic at the close of 1918 affected 30 per cent. of all the families under the attention of this Society. The comparison with previous years is worthy of study. Various causes are responsible for an increase during the year of approximately 25 per cent. in the number of families cared for. The mobility of industrial groups due to war conditions seems to be reflected in the increase of about one-fourth in the number of families receiving treatment who had lived in the city less than two years. A striking decrease is shown in the number of families under treatment on account of delinquency. On the other hand, the number of able-bodied unemployed men with families, after reaching the low figure of two in the preceding year, has risen again rapidly to 89, which corresponds roughly to the pre-war figure.

The State and Welfare Work.—The year has witnessed unusual manifestations of vigor and vision with respect to the service of the state in the field of social betterment. This is directly traceable to the war-time impulse and to the movement for reorganization of state government which has taken active shape in several commonwealths during the last few years (see V, *State Administration*). A notable pronouncement on the theory of these developments was that of Dean Roscoe Pound of Harvard in the National Conference of Social Work, in which he defined the function of the State as that of enabling individuals to live truly human lives in civilized society and of preserving, ordering, and advancing civilization. Under the so-called Consolidation Act Illinois is providing a Department of Public Welfare with a director and subordinate to him the following department heads: superintendents of charities, of prisons, of pardons and paroles, fiscal supervisor, criminologist, and alienist. An outstanding development in Illinois during the year has been the projection of a state central group hospital at Chicago under the joint

auspices of the Welfare Department and of the University of Illinois, with an initial appropriation of \$1,500,000. Institutions immediately to be incorporated into this scheme are an eye and ear infirmary, a hospital for crippled children, and a psychopathic institute and hospital. Another advancement under the reorganized Illinois service has been the provision of 30 or more social workers to supervise home relationships of individuals committed to state institutions.

Parallel development in the public-welfare service has taken place in the state of New Jersey, following the report of an exhaustive investigation by a legislative commission in 1918. A State Board of Control of institutions and agencies has been set up, with a commissioner at its head. A manual of organization similar to those of departments of the Federal Government and of large corporations has been prepared. Staff meetings, daily reports of activities, and bi-weekly conferences of superintendents of institutions provide means for co-ordination of the varied activities of institutions and agencies. Needs for appropriation are transmitted through the central office to the State Budget Commission. Important reorganization has taken place also in the work of the former Board of Charity of the commonwealth of Massachusetts. Its official designation has been changed to Department of Public Welfare, and its secretary has been given the title of commissioner.

The year 1919 marks the accession to the list of states having central advisory boards of charities and correction of the state of Delaware. A practical advancement of considerable significance in the field of public administration has occurred in North Carolina, where in all but 22 counties have been established county departments of public welfare under superintendents approved by the State Board of Charities and Public Welfare. General interest in the affairs of state welfare departments was further increased at the National Conference of Social Work of 1919 through the revival of an earlier proposal for interstate uniformity in statistics of public institutions. Furthermore, coöperating committees

on statistics of delinquency and of treatment of criminals have been provided by this conference and by the American Prison Association. (See also V, *State Administration*.)

The Local Community.—The year 1919 has been characteristically a period of preoccupation with nation-wide movements. The outstanding question for the improvement of neighborhood and community life has naturally been to what extent it might profit by economic and humanitarian advances of the war period. Approved standards of housing have been sanctioned and enforced by the Government (see VI, *Housing*). What have been the consequent advantages for communities, and to what extent may the gains be made permanent? To what extent may community forces be rallied in furnishing a positive substitute for the saloon? How far may communities go in profiting hereafter by the Government's war-time example of public-health activity and vice prevention in cities near military encampments? The most positive organized programme in this direction has been that of Community Service, Incorporated (see *Recreation, infra*). One of the best examples of local application of its programme is at Chester, Pa. Community singing, Americanization, school-center organization, and work with various racial groups have been the chief lines of activity. A striking reassertion of public feeling for local community affairs, notwithstanding public preoccupation with activities in the national interest, is the movement to erect community houses as war memorials (see Albert S. Bard in *National Municipal Review*, March, 1919). Under the guidance of a National Committee on Memorial Buildings plans have been projected for directing the general feeling for commemoration of the war into channels of community betterment (see also *Recreation, infra*).

Likewise, as emphasizing the community-interest side of war-time efforts, should be mentioned the community-councils movement inaugurated during the war by the States Relations Service of the Council of National Defense. In a number of states complete programmes for establishing such councils have been projected by

departments of education or other public authorities. The working out of this idea through state-wide plans is scarcely more interesting and significant than its application in the larger cities. In New York City community councils have been organized in 82 neighborhoods. A general "city parliament" has been established to coördinate and foster their work. Special activities have been undertaken with respect to Americanization, recreation, public health, and industrial welfare. The historical setting for the present development is thus described: "Community councils include community centers, earlier established; they have taken over the methods of the community clearing house and health districts; and they go indefinitely beyond the earlier neighborhood associations in their democratic constitution and their inclusive membership." Los Angeles has a Council of Community Service, which is an outgrowth of the precinct and club units of the Council of Defense and Liberty Loan committees. It reports extensive activity and achievements with respect to food conservation, sewing centers, housing, employment, recreation, and education. The movement for which the terms "community center" and "community council" stand has meant for the older and more populous districts chiefly the coördination and popularization of services already established by separate agencies; for the newer districts it has meant rather the inauguration of such services. In recognition of the need of trained workers in this field several courses are being offered at Columbia University on neighborhood leadership and community organization.

A striking example of the shifting of community enterprise from the circumstances of war organization into the conditions of peace has been the development of the War Civics Committee of East St. Louis. With the tremendous transfer of industrial groups which the manufacture of war munitions required, it was found desirable by the War Department to create a Community Organization Branch of the Ordnance Department for the supervision of living conditions. Under these auspices a civic director for East St. Louis was provided, to work

under the supervision of a local committee. A programme was outlined reaching into every branch of community welfare. The undertaking was financed on a three years' budget guaranteed by local interests. Achievements under these auspices in a city noted previously for its lack of organization for these purposes marks this as one of the outstanding developments of the war period.

Community Federation and Financing of Social Agencies.—The year's developments with regard to federation and joint financing of social agencies (*A. Y. B.*, 1918, p. 423) have been phenomenal. Those cities that participated in war-chest campaigns for various national and local purposes found themselves after the armistice the residuary legatees of organizations and popular feeling for community action, for obtaining individual quotas, and for humanitarian service that called for new programmes rather than a relapse into pre-war methods. No summary of the varied experiences of these cities is yet possible. In general, however, there has been an inclination toward keeping up the spirit and momentum of war-time efforts. An outstanding example is that of Cleveland. In the latter part of November a drive was made for financing local benevolent agencies of every description, including important ones not comprised in the central Welfare Federation. Local budgets for national and foreign relief agencies were added. A total fund of \$3,425,000 was sought. The goal was overshoot by a half-million. Detroit also furnishes an illuminating example. The total asked for in a similar community drive was greater, being \$5,250,000, and because of the size of the fund sought some difficulty was experienced in attaining the mark. In the budget, however, was included an item of nearly two million dollars for new construction, permanent improvements, and other so-called "capital expenditures" of the 55 local agencies participating. This represents a new principle in joint financing, the budgets heretofore raised applying only to maintenance. Another novel feature of the Detroit plan was the calculation of sources from which the money was to be raised. The total

amount of corporation incomes was estimated, and like computations were made for individual incomes of \$3,000 or more and for those under \$3,000, or "labor." On this basis corporations were asked to give one per cent. of their income, individuals four per cent., and labor two days' pay. The plan of organization and methods of salesmanship adopted for the larger campaigns, such as these, represent a new departure in charitable finance and publicity.

On Aug. 1 the National Investigation Bureau (*A. Y. B.*, 1918, p. 424) was reorganized as the National Information Bureau. It now has delegate representation from a number of the larger national organizations. On the basis of its 10 standards requisite for endorsement, it has under study more than 200 active organizations, national and local. Its efforts are being directed constantly more toward bringing together organizations working in the same field for comparison of programmes, decrease of duplication, and increase of coöperation. It assists in making of budgets and in improving financing and accounting methods.

On the heels of this manifest popularity of federation of social agencies and institutions for financing has followed a genuine progress in procedure from the standpoint of constructive social work. This has resulted largely from introspection and discussion and from the research activities they have established. The movement for bringing local agencies together has been largely a protest against the patchwork character of their results individually. The Cincinnati organization, for example, has built up city-wide councils for discussion and determination of policy in the following 11 fields: tuberculosis, hospitals, mental hygiene, social hygiene, housing, recreation, medical relief, waste, nursing, industrial health, child hygiene. In each of these councils the representatives of associated agencies and other leaders are determining what are the measures, national, state, and local, for which they should stand in attacking their problems. Other activities in common that have characterized the development of these federations recently have been the setting up of legislative bureaus and of cen-

tralized schemes of accounting and purchasing, arrangements for local charities to occupy central buildings, improvement of facilities for training social workers, and increase of use of central exchanges for information about individuals under treatment. A model constitution for community federations was drawn up during the year. This and other developments have been largely stimulated through the formation recently of the American Association for Community Organization.

Rural Social Work.—The country-life movement, which dates formally back to the appointment of a commission by the President of the United States in 1903, was rejuvenated during the closing days of the war by the organization of a National Country Life Conference. President Kenyon L. Butterfield of Massachusetts Agricultural College is the president of the organization, and Prof. Dwight Sanderson of Cornell University is secretary. The second annual meeting of the Conference was held in Chicago in November, 1919. In its plan of committee organization it reflects the systematic discussion that has been given this subject by rural sociologists since 1908, and in the scope and popularity of its programme it shows the widespread interest in rural economy which has been developed by the war. Rural education alone has been considered worthy of study and organization under seven well differentiated subcommittees. The appointment of a committee on public information signifies the intention of the Conference to gather together and put before the people constantly the results of research and comment on rural problems. Another organization, the Nation Conference of Social Work, in whose discussions the original country-life movement has been well nurtured, especially with respect to welfare activities, in 1919 made further substantial contributions. The programmes of two rural states, North Carolina and Iowa, were described, and the experiences of two New York counties in the administration of rural child-welfare work were presented in detail. North Carolina has recently enacted 35 laws of economic and social import, all of them directly

XIV. SOCIAL AND ECONOMIC PROBLEMS

or indirectly related to rural social welfare. One of the most important of these measures is that providing for incorporation of rural townships, with a local-option provision. In general, the trend of thought has been in the direction, on the one hand, of systematic ruralizing of the agencies, voluntary and governmental, of social betterment, education, etc.; and on the other, of developing and fostering democratic community councils and centers of activity in the country.

Education for Social Work.—In May, 1919, a conference was called by the New York School of Social Work to discuss the status of professional education in this field. This marked the twenty-first year of the history of organized training of this nature. Fifteen schools were represented, all offering full-year courses, and 10 of them two-year courses. An Association of Training Schools for Professional Social Work was formed, with the object of developing standards. A plan of research was projected to discover and accumulate scientific teaching material on technical aspects of social work. It is proposed to emphasize the importance of social work as a profession and the use of scientifically trained workers for intricate tasks of adjustment. The seven vocational fields for which training is provided by the New York School follow in a degree the main divisions of discussion in the National Conference of Social Work. They are: community work, criminology, family and child welfare, industry, medical social service, psychiatric social work, social research. A new factor was injected into the scheme of training for social work with the development of the system of "psychiatric aids" in the Army medical organization (see also *Mental Hygiene*, *infra*). To train such assistants a two months' instructional course was offered at Smith College, followed by six months of practical work in various mental hospitals and clinics. Forty students completed the course and are holding positions of responsibility. The experience of the psychiatric unit of the Army Medical Corps has resulted in the emphasis on this branch of teaching in various schools of social work. Perhaps the most important factor in enlarging

the demand for training in social work has been the training institutes of the Home Service of the American Red Cross (see *infra*). Organization in connection with Red Cross institutes has been especially useful from the standpoint of surveying and supplementing the existing opportunities for training in social service at colleges.

Provision of Personnel.—During the war there was an unusual demand for trained social workers; whole new fields of work developed for people having real training. The signing of the armistice did not diminish this demand. Although there has been a considerable shifting from social work in war service abroad and in this country to established social agencies, the general demand has been steady and has even increased. War-time activities advertised social work and brought about an understanding of its benefits to the community in a way that would have taken years of ordinary development. The Home Service of the American Red Cross has given a service covering the whole United States which has interpreted the intensive work that is to be done with individual families and created an understanding of "case work," that is, intensive work with individuals in some form of distress. Moreover, certain experiments in community organization have interpreted another type of social work. More than ever before the public understands the service rendered by the trained social worker and demands real training when filling positions in social agencies.

This increased demand and better understanding of social work is reflected in the calls upon the National Social Workers' Exchange, a non-commercial organization that offers an information service to both social workers and social agencies about new opportunities in social work. Positions passing through the Exchange to be filled for the year 1919 have numbered 1,700, and have been distributed through 43 states and seven foreign countries. The number of calls for workers and of social workers interviewed have doubled in the year. Requests for information relating to training for social work, standards of work, salary standards, and questions of ethics within the group show

an increasing professional and scientific attitude.

The present occupational grouping in social work, according to the experience of the National Social Workers' Exchange, includes, first, social case work, with the following special classifications: child-welfare work, church-visiting work, family case work, medical social work, occupational therapy, probation, protective, parole and prison work, public-health nursing and visiting, psychiatric social work, school visiting, visiting housekeeping, vocational guidance, and welfare work. Other major classifications, each with its subordinate occupations, are: social-group work, social-reform work, social research, industrial work, and a series of specialties, such as community song leaders, psychiatrists, work with colored people, and others.

Conferences of Social Work.—Local, state, and national meetings of those engaged in various phases of practical social work have revived greatly in interest and attendance following the armistice and the general abandonment of meetings during the epidemic of influenza. Permanent organizations of this nature in cities are now known to the number of 72. State-conference discussions have been devoted largely to problems of social reconstruction. In a few instances meetings have been called by governors or representatives of war-time agencies. The Ohio Conference of Charities and Correction has passed under state control, being financed from public appropriations. A new conference has been organized in Colorado and similar advances are in prospect in certain southern states. The National Conference of Social Work, meeting at Atlantic City in June, was characterized by a notable broadening of programme to include almost every department of organized humanitarian effort. This was favored by an unprecedented attendance, of about 5,000 delegates, and by the more complete operation of its new plan of permanent divisions. The war-time extension of principles of social work in local communities and in national and international undertakings characterized the discussions of the Conference.

THE AMERICAN RED CROSS

General Relief Activities.—When the year 1919 began, in addition to the many forms of relief provided for service men and their families in the United States, the American Red Cross was still operating on a large scale in France, England, Italy, Belgium, Siberia, North Russia (Archangel), Switzerland, the Balkans, and Palestine. As rapidly as possible this overseas work was curtailed, but meanwhile the war was found to have left the peoples of other countries in such a condition of helplessness that new and emergency relief operations had to be undertaken by the Red Cross if thousands of men, women, and children were to be saved from death by starvation, wounds, disease, and lack of shelter. The result was that new relief expeditions went to the following countries: Albania, the remains of the Central Empires (to succor Allied prisoners of war), Czecho-Slovakia, Poland, South Russia, Rumania, Bosnia and Herzegovina and the Baltic States. Several of these operations had not been concluded at the end of the year, so great was the need of assistance that only America could send.

According to plan the American Red Cross War Council dissolved on March 1, and authority and responsibility were turned back to the Executive Committee, where they had lodged prior to the war, with Dr. Livingston Farrand as chairman and several of the War Council as new members. Various foreign commissions were successively closed out, and in May a Committee on Liquidation began to make reducing adjustments, to sell off saleable supplies no longer needed in relief operations, and to scale down activities to an irreducible minimum. By June the commissions to Italy, Belgium, Switzerland, and Palestine had been terminated, and the commissions to Greece and other Balkan states had been federated in a commission to the Balkans; the commission to Great Britain was on the point of closing, and that to France was dwindling to comparatively small proportions; and the direction of American Red Cross activities throughout Europe was vested in a Red Cross Commission to

XIV. SOCIAL AND ECONOMIC PROBLEMS

Europe. Late in 1919 there were still 1,100 American workers in Europe.

The American Red Cross took a leading part in the formation of the League of Red Cross Societies, which, with headquarters at Geneva and with the national Red Cross organizations of the United States, Great Britain, France, Italy, and Japan as founder members, has undertaken a world-wide fight for the prevention of disease and promotion of health.

In the third Red Cross Roll Call, Nov. 2-11, some ten million adult Americans renewed their membership. In this campaign also a large fund was contributed toward completing the war obligations of the Red Cross.

War Service.—During the year the War Council made its complete report to the American people covering the 20 months it was in control of the organization's activities and the expenditure of the money given by the people to the Red Cross as the connecting link between them and the men at the front who were winning the war. Following are certain round numbers covering American Red Cross participation in the war, as revealed by the War Council's report:

Contributions received (material and money).....	\$400,000,000
Red Cross members:	
Adults	20,000,000
Children	11,000,000
Red Cross workers.....	8,100,000
Relief articles produced by volunteer workers	371,577,000
Families of soldiers aided by Home Service in U. S.	500,000
Refreshments served by canteen workers in U. S.	40,000,000
Nurses enrolled for service with Army, Navy, or Red Cross	23,822
Kinds of comfort articles distributed to soldiers and sailors in U. S.	2,700
Knitted articles given to soldiers and sailors in U. S.	10,900,000
Tons of relief supplies shipped overseas	101,000
Foreign countries in which Red Cross operated.....	25
Patient days in Red Cross hospitals in France.....	1,155,000
French hospitals given material aid	3,780
Splints supplied for American soldiers	294,000
Gallons of nitrous oxide and oxygen furnished French hospitals	4,340,000
Men served by Red Cross canteens in France.....	15,376,000
Refugees aided in France..	1,726,000

American convalescent soldiers attending Red Cross movies in France.....	3,110,000
Soldiers carried by Red Cross ambulances in Italy	148,000
Children cared for by Red Cross in Italy.....	155,000

Finances.—Of the \$400,000,000 in money and supplies contributed to the American Red Cross during the 20 months the War Council was in existence, \$263,000,000 was allotted to national headquarters, and \$137,000,000 went to the chapters to finance their activities. Expenditures in the 20 months totalled \$273,000,000, divided as follows: by national headquarters in France, \$57,000,000; elsewhere overseas, \$64,000,000; in the United States, \$48,000,000; by chapters in the United States, \$43,000,000; cost of chapter-produced articles distributed in France, \$25,000,000; elsewhere overseas, \$8,000,000; in the United States, \$28,000,000; making a total expenditure in France, \$82,000,000; elsewhere overseas, \$72,000,000; and in the United States, \$119,000,000. There remained on Feb. 28, 1919, accordingly, a balance of \$127,000,000, of which \$41,000,000 was cash, \$53,000,000 supplies held by national headquarters, and \$33,000,000 supplies in the hands of the chapters. The cash contributed to the Red Cross in the 20 months was divided \$42,000,000 from memberships and \$283,500,000 from the two \$100,000,000 war-fund drives. The ratio of "management" to "relief," the report shows, was 1.8 per cent.

Membership.—On May 1, 1917, just before the appointment of the War Council, there were 562 Red Cross chapters with a membership of 486,194. On Feb. 28, 1919, there were 3,724 chapters with 17,186 branches, embracing a membership of 20,000,000 adults and 11,000,000 junior members.

Home Service.—During the year 1919 Red Cross Home Service (A. Y. B., 1918, p. 421), grew to proportions much greater than at any time while the war was in progress. Whereas it was estimated that during the year 1918, 350,000 families of soldiers and sailors had been assisted, in the single month of March, 1919, 500,000 came to the attention of the Home Service Section and received information, advice, financial assistance, and service of many other kinds. During the year

over \$6,000,000 was spent in relief. Improvements in the administration of the War-Risk Insurance Act made it unnecessary for the Red Cross to spend proportionally as much as had been required in 1918. Demobilization of the Army, however, brought many problems of readjustment to the men, which in turn increased the work of the Home Service sections.

Cooperation with Bureau of War-Risk Insurance.—In so far as the Red Cross participated in the reestablishment of the 250,000 disabled soldiers in civilian life, that work has been carried on by the Home Service Section. The part taken by the Red Cross has consisted of getting in touch with men and getting their cases before the proper governmental departments; of taking care of them pending decisions on their claims; of explaining the Government's programme to the men and to their families; of taking care of the families while the men were being retained; and of assisting generally in friendly ways which served to keep up the courage of the handicapped man. On account of the confusion which had arisen in the Bureau of War-Risk Insurance and the duplication of work when several welfare organizations made inquiries on the same case, an agreement was effected by which all inquiries of this character should be routed through the local Home Service sections which would see that one inquiry served the purposes of all interested organizations. Home Service sections also assisted the Bureau of War-Risk Insurance in locating people all over the United States whose allotment and allowance checks had failed to reach them and had been returned to Washington. Over 45,000 such investigations have been made, with the result that 29,000 have yielded information which enabled further action to be taken by the Government departments. Over 20,000 such investigations were pending at the end of 1919. It is estimated that not less than three million dollars have through this means already reached the beneficiaries.

Community Service.—Early in 1919 it became evident that in places where no family-welfare organizations were existing, Red Cross Home Service was locally regarded as the logical begin-

ning toward the provision of such a community service. Furthermore, through Home Service communities had learned much about their needs and shortcomings, and through Home Service they saw a way to meet at least some of the needs. Through conferences, through the training and supervision of Home Service workers, through the resources of coöperation with division offices and the national headquarters of the Red Cross, relatively high standards for such work had been introduced to these new communities. They were anxious to avail themselves of these opportunities and to conduct the local work in accordance with approved, advanced methods. In March, 1919, accordingly, it was decided at national headquarters to authorize the extension of Home Service to civilian families provided the local Home Service section met certain requirements, largely of a character to ensure the fulfillment of the war-time obligations and to ensure also that the new enterprise was firmly established financially, that it did not duplicate the work of an existing local agency, and that it would be conducted in such a way as not to bring discredit on the name of the Red Cross. In addition to the authorization to extend general family-welfare work, Home Service sections may also undertake other forms of community service, if there is a demonstrated need and if such activity falls within the broad lines of what has been considered appropriate fields of effort for the Red Cross. In general, Red Cross chapters have not been authorized to expend their funds for the building of institutions or for the subsidizing of other organizations. Of the 3,600 Home Service sections, 300 had at the end of 1919 been granted permission to extend their service and 600 had applications pending. Many sections which look forward to extension are still wholly occupied with war work and have, therefore, not yet been in a position to meet the conditions established by the general organization.

Rural Organization.—In the formation of local peace programmes it was recognized by the Red Cross that one of the most valuable aids that the national organization could put at the disposal of the local communities

XIV. SOCIAL AND ECONOMIC PROBLEMS

would be expert services in the field of rural organization, since 2,800 of the 3,600 Red Cross chapters have within their jurisdiction no towns which have attained a population of 8,000. Rural specialists have been employed at national headquarters and are now being attached to the division staffs. The field workers of the Red Cross are being trained in this phase of social development.

Red Cross Institutes.—During the war the need for trained workers was so great that special institute courses were given by the Red Cross to prepare people to do Home-Service work. This emergency need continued throughout the whole of 1919, during which the number of institute graduates was doubled, making a total number of 2,100. These special Red Cross courses are to be withdrawn at the earliest date possible, and in their stead courses in colleges and universities are to be substituted as preparation for Home Service. Coöperative agreements have been entered into with some 15 educational institutions, largely state universities, in accordance with which the academic courses will be provided by the institution, while the Red Cross will develop laboratory opportunities and furnish supervision of the field work of the students enrolled.

Hospital Social Service.—At the request of the Surgeon-General of the U. S. Public Health Service, hospital social service has been provided by the Red Cross in the forty hospitals operated by his service. In addition to the usual personal services implied in hospital social service, occupational therapy, recreation, comforts for the patients, and certain supplies for the hospitals are included in the Red Cross hospital programme for these institutions. This work is under the direction of the Department of Civilian Relief.

Disaster Relief.—Disaster relief during 1919 was characterized by a series of smaller operations which in the aggregate involved more work than is usually required in the more spectacular catastrophes. The influenza epidemic was regarded as a national calamity, in which it was appropriate for the Red Cross to render assistance on a disaster-relief basis. At the beginning of the year the influenza epidemic, Perth Amboy, and the fire-ravaged portions of Minnesota were all receiving active attention of the Red Cross. The drought in Montana, floods in Minnesota, cyclones in northern Texas, a hurricane at Corpus Christi, Tex., and the usual grist of fires, explosions, and shipwrecks made up a year of heavy demands.

RECREATION

ABBIE CONDIT

The New Community Emphasis.—The impetus given recreation during the war through the entertainment of the service men in the camps and naval stations and in the communities near the training camps, together with the quickening of community consciousness and of the spirit of team work which war emergencies and war service engendered, has had a revolutionizing effect upon the community-recreation movement. Communities everywhere, unwilling to lose the community spirit to which war service gave rise, are striving to conserve the values of team play developed during the war. Returned service men, accustomed to out-of-door life and sports at the home camps and overseas, are asking that in their home communities they shall have recreational and social

facilities and activities as enjoyable as those which they had in service and that their families, friends, and the community at large shall share in a wholesome recreational community life. The people who during the war have seen what such activities as community singing, pageants, athletic meets, neighborhood block parties, home hospitality, and the pooling of the resources of all local agencies for a common purpose can mean in the life of a community are insistent that means be devised for turning into peace-time channels the values of war experience. Out of it all has come an emphasis on community expression, on the necessity for evaluating community resources and needs and for making possible a development of leisure-time activities which will touch the

lives of all individuals in the community. The war agencies which operated for the benefit of the service men are now working to make their activities and the experiences gained during the war count for community betterment.

Community Service Incorporated.

—Out of War Camp Community Service, which during the war devoted its energies to organizing the social and recreational life of the communities near the training camps for the benefit of the soldiers in their free time (*A. Y. B.*, 1918, p. 426), has grown Community Service, Incorporated, which seeks to conserve the values of War Camp Community Service through the development of a broader social and recreational life for the community and the individual, for the returned service man, and for the regular Army and Navy. Through a community committee representative of all interests in the community touching leisure-time problems, the community itself, with assistance from Community Service, Incorporated, in the initial stages of organization and of the planning of the programme, seeks to develop from the individual needs and resources of the community a community-wide programme of leisure-time activities. Community Service, Incorporated, now in operation in a number of communities, many of them industrial centers, is carrying on a wide range of activities, including the development of playgrounds, parks, and of vacant-lot play, block parties, community singing and choruses, noon-time singing in factories and stores, community drama, special celebrations, citizenship activities for the foreign-born, recreational work for colored citizens, social-center activities in schools and other meeting places, the training of volunteers, and the conducting of classes and activities tending to give expression to educational and cultural as well as purely recreational interests.

Municipal Recreation.—The war has had its effect on recreation, not only through emphasizing the community values involved, but also in the development of the municipal-recreation movement which for years has slowly but surely been gaining ground in American communities and which Community Service, Incorporated,

seeks to strengthen and enlarge. Figures are not yet available of the present status of the municipal-recreation movement in communities throughout the country or of the progress made during 1919 by municipal recreation departments and private groups conducting activities. Correspondence which has reached the office of the Playground and Recreation Association of America, however, indicates that a number of communities which have never before had a recreation system have inaugurated the work during the year and that there has been a marked growth throughout the country. The fact, too, that in spite of war demands during the year 1918, there was a decrease of only 1.8 per cent. in the number of playgrounds and recreation centers conducted, and an increase of 174 in the number of year-round workers employed, leads those who are watching the growth of the movement to feel that since the signing of the armistice there has undoubtedly been a rapid development along the line of municipally supported and controlled recreation.

Some of the very definite advances made during the year in a number of communities, and these are indicative of the general trend throughout the country, will be of interest. Detroit has authorized a bond issue of \$10,000,000 for the purchase of special parks which will include a number of large playgrounds and in all probability a public golf course. Portland, Ore., has voted a bond issue of \$500,000 for the purchase of sites for playgrounds. A number of cities, among them Memphis, Tenn., Milwaukee, Wis., Newton, Mass., and Sacramento, Calif., have doubled their appropriations for municipal recreation, and many other communities have greatly increased the funds devoted to this purpose. Now that the war is over, public-spirited citizens are turning their attention to the recreational needs of their communities, and a number of cities have been the recipients during the past 12 months of gifts for recreational purposes. Detroit has received a gift which will give the city an auditorium with an endowment amounting to \$2,500,000. This building, which will be known as Hannan Memorial Hall, will have a

hall with a seating capacity of 7,000 and a smaller annex for chamber music which will be used for musical productions and lectures; as there will be no rental charges to groups giving musical entertainments, the best music will be available at a minimum price. Through the generosity of a private citizen Scranton's recreational facilities are being largely increased. Sacramento has been given a memorial playground valued at \$10,000. The city of Columbus has been the recipient of a gift of 40 acres of land which will be developed as a model outdoor play center and park field. Kalamazoo, Mich., has been given for playground purposes a tract of land of 17 acres located near the center of the city. Newburgh, N. Y., has been presented with a municipal golf course which will adjoin the Hitch Memorial Recreation Field administered by the Recreation Commission.

During the year a great deal of emphasis has been laid upon the training of workers for the conducting of leisure-time activities. Of special interest along this line is the course in forest recreation given by the New York State College of Forestry at Syracuse for the training of workers who will be qualified to develop for the benefit of the American public the recreational possibilities represented in the national forests and parks. The selection of camp sites both for summer and overnight use, the laying out of trails, and the utilization of all the facilities offered will be taken up in the courses.

Community Music.—During the war, community singing proved a remarkable unifying force, and a singing nation kept pace with a singing Army. That community singing was not an ephemeral development which served in a period of stress as an outlet for over-wrought emotion has been proven by its progress during the after-war period. The American people are still singing, and many interesting developments have come out of the movement. Noon-time singing at factories and stores, choruses, glee clubs, quartettes, and orchestras are outgrowths of the movement to keep America singing. Through the Community Singing Department of War Camp Community Service many volunteer leaders have been trained in a

number of cities to direct singing in connection with churches, lodges, and various community groups. The community opera is being successfully developed in a number of communities. In Washington, for example, some very excellent performances have been given by amateurs under the auspices of the War Camp Community Service. (See also XXVIII, *Music*.)

Community Drama.—Other forms of art expression have been greatly stimulated during the year. Community drama has made marked progress, not only in large cities, but in small districts where, through extension departments of state universities, much is being done to develop the drama. Bridgeport, Conn., has planned to develop an interesting form of dramatic work in its "roaming theaters," small groups of players who will give their performances along the streets. Another feature in Bridgeport has come through the "wandering storytellers," young women who, in gypsy costumes, gather the children together on the streets and playgrounds and in public institutions for an hour of story-telling. The importance of the pageant as a means of drawing people together and the increased emphasis on the celebration of special holidays has brought about the remarkable development in pageantry during the year. Among the most ambitious pageants produced have been the International Festival of Peace, held on July 4 at Washington, in which all the nations of the world were represented, and the League of Nations at Chester, Pa., through which Chester welcomed its foreign-born citizens who in turn pledged to Chester their loyalty, art, and labor. (See also XXVIII, *Music*.)

Community Days.—Another development significant of the community emphasis on recreation has been the organization in a number of cities of a "Community Day," when the citizens come together for a common purpose. This may take the form, as it did in Chillicothe, Ohio, of the entertainment by the community of the soldiers at the nearby camps, or it may be the coming together of the citizens for the carrying out of some enterprise which will add to the recreational facilities of the community. In a number of cities, for example, the citizens as vol-

unteers have devoted a day to clearing a lot for an athletic field or a playground, installing apparatus, putting up shelter houses, and preparing the ground for community recreation uses. Community picnic features are usually combined in such a programme, and a splendid spirit of neighborliness and good fellowship is created.

Recreation Legislation.—Progress has been made during the year in legislation touching leisure-time facilities and activities. Pennsylvania, Connecticut, and Massachusetts have passed home-rule bills permitting cities, towns, and villages to acquire land and conduct playground and recreation centers under any existing department or under a recreation commission or board which they are empowered to create. Pennsylvania has taken a further step in passing a law requiring the board of education in any district to make available the use of their schoolhouses and grounds for social and recreational purposes if a petition for the use of these facilities is presented by a certain number of adult residents. Funds for conducting the work may be appropriated by the Board of School Directors. A law very significant in showing the trend of thought toward community organization which has come out of the war was enacted during the year in Michigan. Through the provisions of this law the recreational and social interests of the state will be furthered by a state commission of 26 and through county boards and community councils responsible to it.

Physical Education.—The disclosures regarding the physical condition of America's young men brought out through the physical examinations for war service, which showed that 33 per cent. of the drafted men were physically unfit, have shocked the country into a realization of the necessity for compulsory education as a means of creating physical fitness. In November, 1918, the National Physical Education Service was organized by the Playground and Recreation Association of America to help states secure adequate compulsory physical-education legislation and to work for Federal legislation. Since January, 1919, compulsory physical education laws have been enacted in

Washington, Oregon, Utah, Michigan, Maine, and Pennsylvania, making a total of 15 states now having physical-education laws. Not all of these laws provide for an appropriation of funds for the work. The legislation passed in Maine is noteworthy in the adequacy of the course which it provides and in the size of the appropriation. (See also XXX, *Education*.)

Community Buildings as War Memorials.—The movement to establish community buildings as war memorials has met with immediate and widespread response. Large cities and small hamlets have felt the same impulse to honor those who made the supreme sacrifice with forms of memorials that would embody the ideals for which they died. It has been felt in the great majority of cities wishing to erect war memorials that community buildings housing community activities and giving opportunity for wholesome recreation for young and old would be the most fitting form of memorial. A number of states, among them Indiana, Kansas, and Michigan, have passed laws authorizing the erection of such community buildings at county seats and arranging in some instances for their support through taxation. More often, however, the buildings are established as the voluntary expression of the community's desire, and the funds are raised through private subscription. The community buildings range in size from the community bungalow to the great civic center with its group of imposing edifices. Congress has granted a site for the National Victory Memorial Building to be located at Washington. The building, which will cost \$10,000,000, this amount to be raised by nation-wide subscription, will be dedicated to the boys of '76 and the boys of 1917. The Bureau of Memorial Buildings of the War Camp Community Service, which has been merged with the National Committee on Memorial Buildings established in January, 1919, to assist in the guidance of the movement, is designed to serve as a clearing house of information and service regarding the planning, erecting, and administering of community houses, auditoriums, and recreation centers. Statistics supplied by this Bureau on Oct. 25, 1919, show

that at a conservative estimate 306 memorial buildings have been assured. These are classified as follows: community type, 154; auditoriums and similar buildings, 54; club houses, eight; municipal buildings, six; hospitals, 28; school buildings, five; libraries, 10; churches, six; Y. M. C. A.'s, five; miscellaneous, 30.

Recreation Leaders for Foreign Countries.—An account of recreational activities in America for the year would be incomplete without mention of the part Americans are playing in the remarkable development of recreation which is taking place in Europe and other countries. Out of the war work of the Y. M. C. A., Y. W. C. A., and other organizations that have sent recreational leaders into these countries, a peace-time programme is being promoted which will have a lasting effect on their development. A few instances will serve to show the general trend. Playgrounds and vacation camps for children in a number of the cities of France are helping to restore health and happiness to thousands of children. In Prague a number of playgrounds have been established by American leaders, a training course for recreational directors is being given, and so much interest has been aroused that a law has been passed granting the use of the schools after school hours for recreational purposes. The athletic programme adapted by the Y. M. C. A. for the army in the Czecho-Slovak Republic has extended to the school boys, the soldiers acting as play leaders for the boys. Through such channels as these American leadership is helping

in the recreation of the war-torn countries whose people for years have not known the meaning of joyous play.

Bibliography.—An increasing number of books and pamphlet publications on various phases of the recreation movement are available. A list of publications with their authors, publishers, and prices has been compiled by the Department of Recreation of the Russell Sage Foundation. Many pamphlet publications and a monthly magazine, *The Playground*, which is the official organ of the recreation movement, may be secured from the Playground and Recreation Association of America, 1 Madison Ave., New York City. The Association has published a booklet entitled "Community Recreation" in which has been compiled considerable information on municipal recreation work and on community recreation activities. Additional books which have appeared during the year are the following:

- BOYD, Neva L.—*Hospital and Bedside Games*. (Chicago, School of Civics and Philanthropy.)
 ———. *School Room Games*. (Chicago, School of Civics and Philanthropy.)
 "Community Recreation." (New York, Y. M. C. A. War Work Council.)—A compilation of games, athletics, stunts and mass activities.
 CROMIE, W. J.—*Three Hundred and Twenty-five Group Contests*. (New York, Macmillan.)
 DOUGLAS, Harlan P.—*The Little Town*. (New York, Macmillan.)
 ELSOM, J. C., and TRILLING, Blanche.—*Social Games and Group Dances*. (Philadelphia, Lippincott.)
 FOLLETT, Mary P.—*The New State*. (New York, Longmans, Green.)
 "Ice Breakers." (New York, Woman's Press.)
 "Play and Athletics." (Univ. of Texas, Division of School Interests.)

CHILD WELFARE

LAURA A. THOMPSON

Conference on Child-Welfare Standards.—The Children's Year campaign described in the YEAR BOOK for 1918 (p. 430) continued to be the outstanding feature in child welfare during the early months of 1919. As a fitting conclusion to this campaign the Federal Children's Bureau called a child-welfare conference for the purpose of formulating as the basis for future work "certain irreducible minimum standards for the health, education, and work of the American child."

Foreign delegates were invited from Great Britain, Canada, France, Belgium, Italy, Serbia, and Japan to report on what the Allied countries had learned concerning the better protection of children as a result of their war experiences. The initial gathering of the conference was held in Washington, May 5-8. Because of the crowded living conditions in Washington, this session was limited to a small number of American child-welfare experts who met with

the foreign guests and the staff of the Federal Children's Bureau and drafted the tentative standards. These were then discussed at larger regional conferences in New York, Cleveland, Boston, Chicago, Denver, Minneapolis, San Francisco, and Seattle and revised in accordance with the suggestions made at these regional meetings by a committee appointed for the purpose.

The discussions of the conference centered about four main topics: the economic and social aspects of child-welfare standards, public protection of the health of mothers and children, child labor and education, and children in need of special care. In the wide field represented by the first topic no detailed standards were formulated, but it was recognized that an adequate wage for the father, wholesome and pleasant housing and living conditions, and the abolition of racial discriminations were fundamental to the realization of any child-welfare programme. The resolutions regarding public protection of maternity embraced provision for prenatal care, trained attendance at childbirth, adequate nursing, and domestic assistance for the mother after confinement; those for the protection of infants and young children included the passage of laws requiring that births be registered within three days and that adequate treatment be provided for the eyes of every child at birth. The resolutions further recommended the establishment of health centers to supervise the health of infants and young children and for a public-health nurse for every 2,000 of the population. The standards for the health of the school child called for proper schoolhouses, adequate facilities for recreation and physical training, medical inspection with school nurses to do follow-up work in the homes, and open-air schools and nutrition classes for children in need of special attention.

The minimum standards for children entering employment adopted 16 years as the minimum age for any occupation (18 for mines and quarries), with the further requirements that the child must have finished the eighth grade in school and be physically fit for the work at which he is to be employed and that the work should not be at night or in any dangerous or

unhealthy occupation. Eight hours a day and 44 hours a week were set as the maximum working hours for minors, with the hours spent at continuation schools by children under 18 counted as part of the working day.

In the resolutions relating to "children in need of special care" the conclusions of the White House Conference of 1909 on the care of dependent children were reaffirmed in all essentials. Special emphasis was laid on the importance of home life and an adequate family income. "No child should be permanently removed from his home," declared the conference, "unless it is impossible so to reconstruct family conditions or build and supplement family resources as to make the home safe for the child, or so to supervise the child as to make his continuance in the home safe for the community." State supervision of all institutions for children, provision in the educational system of educational opportunities for deaf, blind, and crippled children, better care for mentally defective children, and the principles of juvenile-court work were covered in other resolutions. The standards agreed upon by the conference, together with the principal papers read, have been printed by the Children's Bureau and represent the most important contribution of the year in the field of child welfare.

Maternal and Infant Welfare.—In addition to its work in connection with the Children's Year, the Federal Children's Bureau continued during 1919 its investigations of maternal and infant welfare in different sections of the country. Three reports covering conditions in rural communities in Montana, North Carolina, and Wisconsin were published. These showed, even in the most prosperous sections, very unsatisfactory provision for medical and nursing attention for mother's and in different sections of the country. Three reports covering conditions in rural communities in Montana, North Carolina, and Wisconsin were published. These showed, even in the most prosperous sections, very unsatisfactory provision for medical and nursing attention for mothers and young children; in the more remote communities it was pitifully inadequate. As a means of lessening the

XIV. SOCIAL AND ECONOMIC PROBLEMS

unduly high mortality revealed by the studies, the reports urged that better nursing and medical care be made generally available through county centers for maternal and infant welfare and through public-health nurses. To test the usefulness of movable health centers as a means of reaching rural communities, the Bureau put into the field in the summer an automobile truck, completely fitted up as a model "well-baby clinic," with a Government doctor and nurse in charge to examine children and give advice to mothers concerning their care. It has proved a great success.

The Children's Bureau published also two further sections of its investigation of infant mortality in cities. These covered Brockton, Mass., and Saginaw, Mich., and revealed much the same relation between family income and infant mortality as the earlier reports (*A. Y. B.*, 1917, p. 376; 1918, p. 432), as well as the bad effects on infant life of crowded housing conditions and poor sanitation. In Saginaw the infant-mortality rate for babies of working mothers was shown to be 132.7 per 1,000 births, as against a rate of 78.3 for those whose mothers were not gainfully employed. The "Birth Statistics in the Registration Area of the United States, 1917," published by the Bureau of the Census late in the fall, showed an infant-mortality rate for the whole registration area of 93.8 per 1,000 living births, as against 101 in 1916 and 100 in 1915 (see also XXV, *Vital Statistics*).

An important advance was made in Rhode Island in the law creating a Division of Child Welfare in the State Board of Health, "for the study and application of measures for the prevention of maternal and infant mortality, for the preparation and issuance of child-welfare literature, the suppression of the disease of young children, and the organizing of child-welfare work." Bureaus of child hygiene were created also in Idaho, Missouri, Texas, and Wisconsin, and established by administrative action in a number of other states. A Child-Welfare Board in New Mexico, placed under the administration of the Department of Education, makes permanent the child-welfare service which had been operating under the State

Council of Defense and will continue the infant-welfare work which that service had been carrying on.

Children's Code Commissions.—The most significant movement in legislation was the appointment of children's code commissions in a number of states. Such code commissions were provided by legislative enactment in Connecticut, Nebraska, and Oklahoma, to study the state laws relating to children and their administration and to report back recommendations to the legislatures. A similar commission was appointed by the governor of South Carolina. In Indiana the legislature provided for an investigating commission on child welfare and social legislation (see also XV, *Labor Legislation*); in South Dakota, for a child-welfare commission; in Alabama, for a State Department of Child Welfare. In Missouri the Children's Code Commission, reappointed by the governor in 1918 (*A. Y. B.*, 1918, p. 432), introduced its revised code of 51 bills. In spite of a particularly difficult political situation, due to the fact that one house was Republican and the other Democratic, 25 of the bills were adopted, but the keystone bill permitting county courts to appoint qualified superintendents of public welfare, was defeated in the closing hours of the session through a filibuster in the Senate and with it the 14 other bills dependent upon it. With the 10 laws enacted in 1917, however, the Commission has succeeded in placing 35 laws for the care of children on the statute books of Missouri. Some of these merely harmonized existing laws, but others introduced entirely new standards into the code.

Dependent Children.—The needs of dependent children were considered by a number of state legislatures in 1919, particularly in relation to "mothers' pensions." Three states, Connecticut, Florida, and Indiana, and the territory of Hawaii adopted such laws for the first time. In Connecticut the administration of the aid, which is limited to widows with children under 16 years, is placed in the hands of a state agent in the office of the state treasurer, with opportunity to the county commissioners to approve or disapprove applications. Another bill before the legislature, which had the ap-

proval of the social workers of the state, would have provided unpaid boards of child welfare with a paid executive secretary for each county, the work of the eight boards to be supervised by the State Board of Charities. The Florida Act authorizes the county commissioners to grant aid to widowed or deserted mothers of children under 16 and to mothers whose husbands are in state institutions, the amount not to exceed \$25 for one child and \$8 for each additional child. The law adopted in Indiana was an amendment to the board of children's guardians law and definitely authorized the county boards to board with their own mothers the dependent children committed to the care of the boards by the juvenile courts. The compensation for the care of such children was increased to 60 cents a day for children under five years of age and 50 cents for those over that age. The new law in Hawaii establishes boards of child welfare in each county, or city and county, with power to grant allowances to any mother with dependent children. Complete revisions of existing "mothers'-pension" laws were made in Nebraska, Pennsylvania, and Utah, and amendments were adopted in a number of other states. The new Pennsylvania law provided more liberal grants for the children, including now the unborn child, and made the residential requirements less rigid; that of Utah transferred the authority to grant aid from the juvenile court in Salt Lake City to the county commissioners. Amendments in Colorado, Illinois, and Ohio increased the amount of the special taxes that might be levied to provide funds for paying allowances. The amount of state aid was increased from \$75 to \$120 a year in California, and additional powers of supervision were given the State Board of Control. Increased allowances were made also in Delaware, and the age limit of the children who may receive aid was raised in Maine, South Dakota, and Utah. In Washington the struggle in the courts to have the 1915 Act set aside in favor of the 1913 law was brought to an end by the U. S. Supreme Court, which sustained the decision of the state Supreme Court which had upheld the constitutionality of the later Act. Much of the

dissatisfaction with the law was removed by an amendment making all needy mothers eligible for aid.

Laws for securing support from the father in cases of desertion were passed in Alaska, Connecticut, Hawaii, Missouri, Oklahoma, and Vermont. Illinois increased the protection of children born out of wedlock by doubling the amounts hitherto named for judgment against a reputed father and by giving jurisdiction of such cases to the same courts as have jurisdiction over cases of dependent, neglected, or delinquent children. The effectiveness of the law, however, was modified by the addition of a provision making the father liable only after acknowledgment of paternity in open court. In Kansas a bill making the state responsible for instituting proceedings in paternity instead of the mother failed of final passage. Attempts to suppress the evils of "baby farms" were made in Illinois, Kansas, Michigan, and Oklahoma by laws requiring a license and standard requirements for all maternity hospitals and children's homes. An interesting decision relative to the status of illegitimate children was rendered by the Supreme Court of Connecticut in ruling that illegitimate children, supported by their father as members of his family, are entitled to workmen's compensation in the event of his death.

Juvenile Courts.—The most important legislation of the year affecting delinquent children was the adoption by North Carolina of the juvenile-court law recommended by the National Child Labor Committee in its report on "Child Welfare in North Carolina." Among other changes the new law makes it a misdemeanor for a parent to contribute to a child's delinquency by failing to exercise control and provide proper care. Extensive revisions of existing laws were made also by Montana and West Virginia, and amendments in the interest of increased efficiency were adopted in Arizona, Minnesota, and other states. Missouri prohibited the commitment of dependent and neglected children to the state reformatory and placed jurisdiction of such cases in the juvenile court: Vermont also prohibited such commitments except by permission of the State Board of Charities and Pro-

bation. In Colorado the Court of Appeals by a four to three vote held that confidences given in a juvenile court were not privileged communications within the meaning of the statutes. The case in which this decision was rendered had its beginning in 1915 when Judge Ben Lindsey of the Denver Juvenile Court refused to divulge information supposedly in his possession through a confidence made in the court (*A. Y. B.*, 1915, p. 392). Because of the importance of the decision to juvenile-court work it is probable that an appeal will be taken to the Supreme Court of the United States.

Defective Children.—One of the bills drafted by the Missouri Children's Code Commission which was adopted by the legislature in 1919 was an act establishing special classes in the public schools for blind, deaf, and feeble-minded children in any school district in which there are 10 or more such children of each type. In districts in which there are fewer than 10 children in any of these classes, boards of education in adjoining districts which collectively have 10 such children in need of instruction are authorized to establish these classes jointly. An amendment adopted in Minnesota upon recommendation of its Child Welfare Commission made more effective a similar law passed in 1917 in that state. The special needs of crippled children were called to the attention of the legislatures by governors' messages in Iowa and Ohio. The large number of crippled and "half-blind" children in St. Louis who are not provided for in the present educational scheme has led to the taking of a special census of such children by the school authorities in order that some plan may be adopted to provide for their education. Similar movements are under way elsewhere.

The great importance of mental defectiveness in relation to all child-welfare problems was again shown in a number of reports during the year. A comprehensive study of mental defectives in a rural county of Delaware, made by the Children's Bureau in collaboration with the U. S. Public Health Service, revealed the seriousness of the problem in rural communities where no special training is provided for retarded or defective chil-

dren. The large number of children in city schools also who are in need of some modification of the curriculum or who are in need of institutional care was shown by a survey of a total school district made in Baltimore by Dr. Macfie Campbell of the Phipps Psychiatric Clinic. The Georgia Commission on Feeble-mindedness in a study made of a typical orphanage found more than a fourth of the children subnormal; of 100 cases of juvenile delinquents in the juvenile court, 17 per cent. were feeble-minded, and 3.5 per cent. of the children in the public schools showed mental defects necessitating special treatment. The report recommended a training school and farm colony for feeble-minded persons, special classes in the public schools, state-wide supervision, mental clinics, and laws for the commitment of the feeble-minded. A Mental Hygiene Commission has been appointed by the governor in Kansas to make an extended investigation of conditions in that state and recommend remedial legislation. (See also *Mental Hygiene*, *infra*.)

Bibliography.—The following are among the important publications of the year:

- The American Child.* Published quarterly by the National Child Labor Committee, New York; first issue, May, 1919. Succeeds the *Child Labor Bulletin*.
- Missouri.—"Children's Code Commission. A Complete Revision of the Laws for the Welfare of Missouri Children." (Jefferson City, H. S. Stephens Co., 1918.)
- National Child Labor Committee.—"Child Welfare in North Carolina: an Inquiry by the National Child Labor Committee for the North Carolina Conference for Social Service, under the Direction of W. H. Swift." (New York, 1918.)
- ."Child-Welfare in Kentucky; an Inquiry for the Kentucky Child Labor Association and the State Board of Health under the Direction of E. N. Clapper." (New York, 1919.)
- SLINGERLAND, Wm. H.—*Child-Placing in Families.* (New York, Russell Sage Foundation, 1919.)
- ."Child-Welfare Work in Louisville: a Study of Conditions, Agencies and Institutions." (Louisville, Ky., Welfare League, 1919; Russell Sage Foundation, Dept. of Child Helping, Pamphlet CH 39.)
- U. S. Children's Bureau.—"Employment Certificate System, Maryland." By F. H. Bird and E. A. Merritt. (Publication No. 41; Washington, Govt. Printing Office, 1919.)

XIV. SOCIAL AND ECONOMIC PROBLEMS

- U. S. Children's Bureau.—"Infant Mortality; Results of a Field Study in Brockton, Mass." By Mary V. Dempsey. (Publication No. 37, 1919.)
- ."Infant Mortality; Results of a Field Study in Saginaw, Mich." By Nila F. Allen. (Publication No. 52, 1919.)
- ."Laws Relating to Mothers' Pensions in the United States, Canada, Denmark, and New Zealand." Compiled by Laura A. Thompson. (Publication No. 63, 1919.)
- ."Maternity and Infant Care in Two Rural Counties in Wisconsin." By Florence B. Sherbon and Elizabeth Moore. (Publication No. 46, 1919.)
- ."Maternity Care and the Welfare of Young Children in a Homesteading

- County in Montana." By Viola I. Paradise. (Publication No. 34, 1919.)
- ."Minimum Standards for Child Welfare Adopted by the Washington and Regional Conferences on Child Welfare, 1919." (Publication No. 62.)
- ."Standards of Child Welfare: Report of the Children's Bureau Conferences, May and June, 1919." (Publication No. 60, 1919.)
- U. S. Public Health Service.—"Mental Defect in a Rural County: Medico-Psychological and Social Study of Mentally Defective Children in Sussex County, Delaware." By Walter L. Treadway and Emma O. Lundberg. (Children's Bureau Publication No. 48; Washington, Govt. Printing Office, 1919.)

SOCIAL HYGIENE

WALTER CLARKE

Public Agencies.—Work in social hygiene in the United States may be divided into two main sections, that which is carried on by Government agencies and that which is carried on by private agencies. The most important Government agencies engaged in social-hygiene activities are the U. S. Public Health Service, the Interdepartmental Social Hygiene Board, the Navy Department, the War Department, and various city and state departments of health.

The various agencies of the Federal Government which are engaged in social-hygiene activities are coöperating with city and particularly with state boards of health. Many states have established special bureaus of venereal diseases and have undertaken comprehensive programmes for the prevention and treatment of syphilis and gonorrhea. This, of course, includes law-enforcement measures and rehabilitation measures on a large scale.

U. S. Public Health Service.—In the U. S. Public Health Service the Division of Venereal Diseases is charged with the duty of preventing and controlling syphilis and gonorrhea. On July 1, 1918, when the Division began its work, there were but 25 clinics in the United States where free treatment for venereal diseases could be obtained. At the present time there are approximately 260 operating under the joint auspices of state boards of health and the Public Health Service. New clinics are constantly being added to this number. The total number of persons treated per month in the free clinics is about 34,500. The coöpera-

tion of physicians in reporting cases and of state boards of health in transmitting these reports has been secured. Also, as a result of campaigns carried on by the Division of Venereal Disease, many druggists have entered into coöperation with the health authorities by discontinuing the sale of quack remedies, so-called. The law-enforcement activities of the Division of Venereal Disease has resulted in the adoption by 46 states of regulations promulgated by the Secretary of the Treasury as conditions upon which allotments provided for in the Chamberlain-Kahn Act (*A. Y. B.*, 1918, p. 436) can be received (see also *infra*). In the states having legislative sessions during 1919, 96 laws were passed, bearing upon the repression of prostitution, the establishment of women's prison farms, the prohibition of sale of venereal-disease nostrums, and appropriating funds for the campaign against venereal disease. Among the most notable acts passed by legislatures must be included Ohio's law appropriating \$650,000 for an institution for the feeble-minded and appropriations by California and Washington of \$150,000 for women's reformatories, Washington also passed a law making statutory rape apply to both sexes.

Distribution of pamphlets, lectures, conferences, motion-picture shows, and other measures have been used in promoting education with regard to the seriousness of venereal diseases and the need to prevent them. Schools, factories, clubs, churches, and civic, social, and fraternal organizations have been reached.

Interdepartmental Social Hygiene Board.—On July 9, 1918, Congress enacted a law establishing the U. S. Interdepartmental Social Hygiene Board and appropriating more than \$4,000,000 for a period of two years (*A. Y. B.*, 1918, p. 436). Of this fund \$300,000 was for the purpose of educational research and development. This is being used to assist colleges, universities, and other suitable institutions in developing better educational methods for the prevention of venereal diseases. Eleven normal schools, three colleges, and 14 universities have been accepted for coöperation with the Board in conducting educational research (see also XXX, *Education*). One million dollars was appropriated for law-enforcement work in the neighborhood of naval and military camps and for the maintenance of delinquent women and girls who had been committed to reformatories and houses of detention. In this field of service the Board has given powerful assistance to state and other agencies which have kept closed something like 124 red-light districts which were originally closed by the Commission on Training Camp Activities. A fund of \$100,000 furnished appropriations to 15 laboratories for scientific investigations on the treatment and prevention of venereal diseases. One million dollars was appropriated to be paid directly to states in proportion to population for the assistance of state departments of health in the prevention, treatment, and control of venereal diseases, these appropriations being conditioned upon the respective states making equal appropriations. Forty-six states have received their allotments. As a result of this assistance 410 venereal-disease clinics have been established.

Navy Department.—A Social Hygiene Section in the Sixth Division of the Bureau of Navigation has been established by the Navy Department for the purpose of advancing general social-hygiene work in the Navy. Educational work with regard to venereal disease is regarded as of great importance. Law-enforcement activities are carried on through coöperation with local civil authorities and through the assistance of other public and private agencies. The Sixth Division, being essentially a morale organization, does

not undertake the treatment or medical prevention of venereal diseases, this being the duty of the Bureau of Medicine and Surgery of the Navy. The constructive phases of the work of the Sixth Division include not only education with regard to venereal diseases, but also provision of adequate recreation, educational facilities, and wholesome surroundings generally.

War Department.—Social-hygiene activities in the Army were carried on extensively during the war by the War Department Commission on Training-Camp Activities (*A. Y. B.*, 1918, p. 435). Such work as is to be done by the new Army on a peace basis will probably be centered in the Surgeon-General's Office and in the General Staff. However, plans have not been completed at this writing, and it is doubtful just what the Army will do to prevent exposure to venereal disease and to provide wholesome and sane education and recreation.

Private Agencies.—The leading private organization in the field of social hygiene is the American Social Hygiene Association, through the efforts of which much of the Government's social-hygiene programme was directed and executed during the war. In returning to a peace basis the American Social Hygiene Association finds itself confronted by very much larger opportunities than existed prior to 1917. The people of the United States are thoroughly awake to the menace of venereal disease and of prostitution. An extensive educational programme has been launched, including the development of pamphlets, motion pictures, exhibits, and stereopticon slides. The law-enforcement activities of the Association will continue on a large scale, including investigations and special studies of conditions in any communities requesting assistance of the organization. The medical features of social hygiene are being cared for by the Medical Department of the Association, which is coöperating with state boards of health and other medical agencies in improving the clinical facilities for the treatment of venereal diseases. A special effort is being made to enlist the interest of physicians in the United States. A Bureau of Social Statistics has been established for the purpose of making spe-

cial studies of the problems centering about the family, including particularly marriage and divorce reforms, birth control, and illegitimacy. Another bureau has been established to assist in providing facilities for the rehabilitation of delinquent women and girls in accordance with the modern social method. The Association is continuing the publication of its quarterly magazine, *Social Hygiene*, and the monthly *Social Hygiene Bulletin*.

Among other national and local private agencies may be mentioned the Y. M. C. A. and the Y. W. C. A., which have undertaken extensive educational programmes; the Committee of Fourteen of New York and the Committee of Fifteen of Chicago, working especially on problems of prostitution; the Illinois, Oregon, and Maryland Social Hygiene Societies; and numerous oth-

er private organizations which are undertaking the full social-hygiene programme.

The experience of the United States during the war in dealing with social-hygiene problems and the methods which were then worked out have attracted wide interest in foreign countries. The "American plan," as it is called, has enlisted the interest in particular of Great Britain, France, Japan, and South American countries. A representative of the American Social Hygiene Association is at work in France acquainting the leaders of public opinion there with the details of the American plan. Special record should be made also that the League of Red Cross Societies has given a large place to social hygiene in its plans for international health activities.

MENTAL HYGIENE

THOMAS W. SALMON

General Summary.—Progress in mental hygiene was last reported in the YEAR BOOK in the issue for 1916 (p. 395). Since that time the aims and methods of work in this department of preventive medicine have been profoundly influenced by the Great War. The exposure of many millions of people, soldiers and civilians, to unprecedented mental stress constituted an enormous experiment in human adaptation. The changes wrought in civil groups of population could not, unfortunately, be studied during the war because those best fitted to make such studies were carrying on military work in their own field. In some measure they may be reconstructed later, and the more or less permanent reactions and end results of stress may be studied with profit. The lessons of mental hygiene from the war that are immediately available have to do almost entirely with the part played by psychology and psychiatry in military affairs.

In common with other social movements, organized work in mental hygiene suffered a severe check except in purely military activities. Many of those engaged in the work of organizations for mental hygiene or in those diversified tasks in mental hygiene that were being assumed by public and

private agencies entered the Army, the Navy, or one of the auxiliary organizations. The treatment of mental diseases in the civil population fell off to a marked degree on account of the enormous inroads upon personnel made by military requirements. Many hospital trustees and superintendents, even in this country, which did not feel the full shock of war, had to see standards of treatment fall below those which were considered inadequate 20 years ago. In spite of a steady increase in population in institutions for mental diseases and mental deficiency, no noteworthy extension of public facilities was made during the war. The surveys conducted by the National Committee for Mental Hygiene had to be discontinued, except for investigations made under state commissions on mental deficiency in Mississippi, Maine, and Kentucky. Legislation affecting mental hygiene was confined to a few measures having more or less direct application to problems presented by rejected soldiers or those discharged from military services with mental disabilities. The latter half of 1919, however, has seen a resumption of nearly all the activities under way when the last article on this subject was written for the YEAR BOOK. The unexpected import-

ance of the psychoneuroses in all armies, the training received by many physicians, nurses, and social workers, the new demands made on account of the necessity of continuing to give skilled care to many of those who suffered mental disability during the war, and the general tendency to turn toward preventive medicine as the means by which the great losses of the war must be made good, all served to bring about increase of interest, broadening of plans, and strengthening of facilities for work in mental hygiene.

Lessons from War Experience.—

During the first few weeks of the war it became apparent that modern combat conditions had created new problems in mental adaptation. Even during the reduction of the forts in Belgium one of these problems presented itself in men suffering from weird disorders not hitherto described in soldiers. These disorders presented hysterical symptoms (deafness, mutism, paralysis, loss of memory, severe emotional reactions), neurasthenic symptoms (persistent fatigue, feelings of doubt and inadequacy, pathological reactions to fear), and mental symptoms varying in their intensity from those simulating the most severe forms of mental disease to transient attacks of confusion and excitement. All appeared among soldiers with amazing frequency. The similarity of these symptoms to those of the psychoses and psychoneuroses of civil life was obscured for some time by an almost superstitious credulity regarding the effects of high explosives. Just as the new machines of war were expected to cause unimagined physical destruction, so were they expected to produce entirely new effects upon the human nervous system. In England the theory that the psychoses and psychoneuroses of war were due to some kind of mechanical shock to the central nervous system gained wide currency, although in France their real nature was at once suspected by physicians and generally accepted by the public. The fact that a few British medical officers persistently directed attention to the general absence of these symptoms among the wounded, who were, of course, exposed to the effects of shell concussion even more than those who received no injuries, had very little ef-

fect in stemming the tide of medical opinion, and the term "shell-shock" came into popular use. It has been said that this trend of opinion cost the British Army in the end the loss of no less than 100,000 unwounded men. Later medical opinion in England as in France became almost unanimous regarding the nature of the nervous manifestations seen in battle and in the camps, but in England popular opinion underwent but little change.

When the time came for the United States to make its medico-military preparations, the importance of rejecting soldiers with mental or nervous disorders, mental deficiency, and constitutional neurotic tendencies was too manifest to be ignored. This resulted in the determination on the part of the Office of the Surgeon-General of the Army to carry on mental as well as physical examinations of all officers and men inducted into the service. In consequence, the most extraordinary psychological and psychiatric experiment ever performed took place. In these examinations the work of psychologist and psychiatrist was coördinated through a Division of Neurology, Psychiatry, and Psychology which was formed in the Surgeon-General's Office. Later the Section on Psychology was attached to another division.

One group of psychological tests was devised for men who could read and write English and another for foreigners and illiterates. The tests for illiterates were intended to give illiterate men the same opportunity to display native ability. The ratings adopted for recording results were (a) very superior intelligence; (b) superior intelligence; (c) average intelligence; (c+) high average intelligence; (c-) low average intelligence; (d) inferior intelligence; (d-) and (e) very inferior intelligence. The approximate percentages found in large numbers of examinations are shown in the following table:

	Per cent.
(a) Very superior intelligence...	4-5
(b) Superior intelligence	8-10
(c) Average intelligence	25
(c+) High average intelligence..	15-18
(c-) Low average intelligence...	20
(d) Inferior intelligence	15

Many of the d- and e men were found by psychiatric examiners to be mental defectives and were discharged

from the service, but the number so referred constituted a relatively small part of the total number of mental defectives discovered in the camps. It is the general opinion that the psychological examinations by the methods devised proved to be valuable. Most commanding officers agreed that the intelligence ratings helped to indicate the type of men best fitted for special tasks and for promotion to non-commissioned rank. The chief advantage over the test of actual experience is that speed is gained in rating men by applying group psychological tests. Other factors, chiefly those lying in the affective or emotional field, very often make the man of relatively less intelligence the best fitted for important tasks or serve to unfit an intelligent man. However, it is the contention of the psychologists that the largest single factor in determining problems of military efficiency is intelligence and that the examinations as conducted in the Army showed conclusively that intelligence can be determined with high accuracy by group methods of examination.

Recent progress in devising and applying tests for development of intelligence in children prepared the way for the work of the psychologists in classifying the Army. It was necessary to devise, however, entirely new methods to meet the great problem of measuring the minds of soldiers in large groups. The system devised provided for group examinations so that several hundred men could be examined in less than an hour, uniformity in methods of applying the examination so that the personality of the tester did not constitute an important factor, precautions against cheating, and a system of scoring which made tabulation of the results easy.

Psychiatric examinations were conducted in every officers' training camp and national cantonment; through the aid of local specialists appointed temporarily for the purpose, even the earliest divisions of the National Guard received a more or less complete sifting. The results, as shown by the completed records of the draft, indicate the value of the new resources in diagnosis which progress in neurology and psychiatry during the last few years has provided. Altogether 72,-

297 men with mental and nervous disease were discharged from the camps in the United States. As a result of this selection the American Expeditionary Forces constituted the best selected body of men ever gathered together for any enterprise. The actual results are shown by the following table of mentally disabled returned from the time of our entry into the war until complete evacuation from France:

Mental diseases	3,597
Constitutional psychopathic states.	504
Mental deficiency	762
Psychoneuroses	2,888
Epilepsy	416

The annual rate for "mental alienation" (by which term the Army reports refer to psychoses, mental deficiency, and constitutional psychopathic states) was 1.6 per thousand in the A. E. F. This rate is 40 per cent. lower than that which obtained among the troops mobilized on the Mexican Border in 1916. Only 1,700 officers and men were returned to the United States as general prisoners. Had the rate for desertions and dishonorable discharges been as great in the A. E. F. as it was in 1915 in the Regular Army, 240,000 men would have been returned to the United States as prisoners. The total number of suicides reported from the A. E. F. was 94. Had the same rate prevailed as in the relatively unselected Regular Army of 1915, the number would have been 1,000. The lessons to be drawn from this remarkable selection of men by means of modern psychological and psychiatric examinations are of wide significance. Their application to the examination of immigrants, to the selection of individuals for specific undertakings in life, to school and college entrance tests, and to any enterprise for which the gradation of human intelligence is required opens up a wide field of future work in mental hygiene.

Perhaps the most valuable mental-hygiene lesson from the war is that taught by the management of the psychoneuroses. Armed with the knowledge provided by the experience of our allies, the problem of dealing with these disorders was attacked frontally. A neuro-psychiatric service made up of well trained specialists

XIV. SOCIAL AND ECONOMIC PROBLEMS

in psychiatry, mental nursing, and occupational therapy for mental and nervous cases was organized in the A. E. F. upon the same lines as that in the United States. Each tactical division was provided with a psychiatrist, special hospitals for psychoneuroses and psychoses were organized in the United States and sent overseas, and the Commander-in-Chief appointed a psychiatrist to supervise all work in this specialty whether in the field or at the base. The earliest military operations, in which a few American divisions went into the line for training, showed that we were not to be by any means immune to the disorders that had proved to be one of the five greatest medico-military problems in the armies in France and England. The American plan of attacking these disorders was based upon an effort to sort carefully the men who fell out of their organizations in battle from exhaustion and various nervous reactions and in the most advanced sanitary formations to attempt to prevent the fixation of psychoneuroses. Certain military exigencies made it impossible to carry out this plan fully in the fighting around Château-Thierry. In consequence more than 10 per cent. of the casualties evacuated to the base were cases of functional nervous diseases. In the St. Mihiel-Argonne-Meuse offensive the organization to control these disorders was perfected by giving every opportunity to the divisional psychiatrists, appointing corps and army consultants in neuropsychiatry, and providing not only special accommodations in field hospitals, but a series of army hospitals for these cases, behind the division but still in the zone of active military operations. The result was that only 15 per cent. of the men admitted to field hospitals with nervous reactions had to be evacuated to the base. In the military operation referred to this meant the saving of at least a brigade of infantry at a critical point.

These facts are important because of the bearing which they have upon the methods of practical management of psychoneuroses in civil life. Already attempts are being made in the school clinics and by the establishment of "preventoria" for nervous dis-

eases to put these methods into use in checking the enormous loss of health and efficiency that comes from the unchecked prevalence of the psychoneuroses of peace.

Agencies of Promotion.—The National Committee for Mental Hygiene has secured larger funds and support and has widened its plans and organization since the release of qualified personnel from the military service. Mental-hygiene societies have been formed since 1916 in the following states: Iowa, Virginia, Kansas, Georgia, Mississippi, and Oregon. A Canadian National Committee for Mental Hygiene has also been organized. New types of agencies in mental hygiene are the Bureau of Mental Hygiene of the Department of Health of Newark, N. J., and the Division of Mental Hygiene of the Connecticut State Department of Health. The section dealing with mental and nervous diseases in the National Conference of Social Work has become the Mental Hygiene Division and at the meeting in June, 1919, was one of the strongest and best attended sections of the Conference. Professorships in mental hygiene have been established in several universities and schools.

Psychiatric Social Work.—There is a growing recognition among psychiatrists that to deal intelligently with many types of mental disease, one must have a clear picture of the patient's educational, social, and industrial background. This can be secured only by trained investigation. Such assistance in the care of mental patients has called for a new type of worker, and the prominent schools of social work have established courses of study to prepare women for this work. In its work on behalf of nervous and mental cases among discharged soldiers the American Red Cross has recognized the need for workers with psychiatric training. In all the larger centers the Home Service bureaus have added psychiatric social workers to their staffs, and the Red Cross is providing this trained service for soldiers in the mental hospitals of the U. S. Public Health Service also. State hospitals for mental diseases in all parts of the country are also seeking means to establish a

social-service department as a regular part of the hospital equipment. Many more convalescents can be released from hospital residence on parole if trained supervision can be given in their homes. Directors of mental clinics have found that they cannot do effective work without a trained agent to follow the patients into their homes and to change their unfavorable surroundings. Mental-hygiene societies find that preventive work is promoted by the success of such a worker in locating cases early through her knowledge of symptoms. Psychiatric social service, therefore, has become a major department of medical social work and a most effective factor in popular education (see also *Organized Social Work*, *supra*).

Treatment of Mental Diseases.—No new methods of treatment of mental diseases have come to light, unless we count as a new method the great extension of occupational therapy in all forms of mental disorders. Such work has been much stimulated by the valuable results obtained from occupational therapy during the war. The hope of preventing in a larger measure the great deterioration which occurs in certain types of mental cases has been revived by this wider use of occupational therapy, and it has come to be realized more and more that the enormous accumulations of extremely demented patients in state hospitals represent failure to apply such measures of treatment in the earlier phases of the disease. In general, the tendency noted during the last few years of depending more and more upon facilities of early diagnosis and treatment, such as special university psychiatric hospitals or clinics to which mental cases are readily and informally admitted for study, research, and teaching, has been greatly increased. During 1919 important beginnings have been made toward the establishment of such clinics in California, Minnesota, Iowa, Illinois, Ohio, Indiana, and New York. At one state hospital intensive laboratory and clinical work has been undertaken to determine the relation of the focal infections to mental disease. Although the results of this work have not yet been sufficiently analyzed

adequately to establish or disprove the somewhat extravagant claims made, it is apparent that a fruitful field for research and treatment exists. No important grant has been made for research in mental diseases, although toward the close of the year several specific projects were receiving attention. The experience of the Army in the treatment of mental and nervous diseases in psychiatric wards attached to general hospitals has effectually proved the practicability of this type of provision. The employment of women nurses generally in mental wards in military hospitals is reflected in increased attention to nursing in civil institutions. The present indications are that in most institutions all wards for men as well as for women will be in charge of women nurses within the next few years.

The care of soldiers, sailors, and marines discharged with mental and nervous diseases is now carried on by the U. S. Public Health Service. On Nov. 20 mental and nervous cases constituted 38 per cent. of all discharged service men receiving hospital care at the expense of the Bureau of War-Risk Insurance. Already five special Government hospitals for these cases have been established, and plans are being prepared to establish a series of similar institutions, clinics, and dispensaries throughout the United States. The entry of the Federal Government into the field of caring for mental disorders is very significant, as up to the present time the only work of this character was that performed by the Government Hospital for the Insane at Washington.

Provisions for the Mentally Defective.—During the year 1919 Tennessee, Alabama, Mississippi, Georgia, Florida, and Hawaii, states not heretofore providing proper institutional care for the feeble-minded, have made appropriations for the construction of schools for the feeble-minded. Funds have also been appropriated either for new institutions in Massachusetts, Minnesota, Illinois, Indiana, and Wisconsin or for the construction of new buildings in South Carolina, Oregon, New Jersey, South Dakota, and Nebraska. Minnesota encourages the formation of special classes by appropriating \$100 *per capita* each year for

children enrolled. (See also *Child Welfare, supra.*)

There is a noticeable tendency towards paroling, under careful supervision, those well trained adult feeble-minded who have no serious difficulties of personality, who possess good industrial efficiency and have a certain community value. The fact that such mental defectives, after proper training, adapt themselves fairly well to the conditions of normal living and get along in the community has been well demonstrated. This all speaks for the early detection and proper training of feeble-minded children in the public schools. Between one and two per cent. of the children in the public schools in states surveyed by the National Committee were found mentally defective. This brings into prominence the serious responsibility borne by public-school authorities and the large part they must inevitably share in any well planned measures looking towards the prevention of crime, pauperism, insanity, and the like. Educational authorities are now awakening to the size and importance of this problem, and special classes or special schools have been organized and are being conducted in most of the larger cities. So important is this problem becoming in the eyes of our public-school officials that there is a growing sentiment in favor of making special classes mandatory instead of permissive. In New York, New Jersey, Massachusetts, Pennsylvania, and Missouri special classes are now compulsory.

Appreciating the importance of early diagnosis of mental defect, many cities are now equipping their school systems with mental clinics (St. Louis, Cincinnati, Los Angeles, etc.), and schools in many other cities, not so well equipped, are making use of outside psychiatrists and psychologists. Some states, notably New York, Wisconsin, and Pennsylvania, have such experts attached to their state departments of education.

The great value of psychiatric clinics in the municipal and police courts of our larger cities was clearly outlined by Committee "A" of the American Institute of Criminal Law and Criminology in 1911. Following upon the report of this Committee, the

municipal courts of Boston, Philadelphia, and Chicago officially equipped themselves with laboratory facilities. The findings in these clinics have been most significant. A study of 1,000 offenders in the Municipal Court of Boston showed 23 per cent. feeble-minded; 10.4 per cent. psychopathic personality; three per cent. epileptic; and nine per cent. mentally diseased. Of these 1,000 cases, 456 exhibited abnormal nervous and mental conditions. Every one of these 456 is a potential candidate for ultimate custodial treatment.

The value of the service as rendered by the clinics in the Municipal and Juvenile Courts in Boston became so evident that the legislature of Massachusetts has extended this service to all of the courts of the state in a law enabling any court in Massachusetts to call upon the Commission for Mental Diseases for the expert services of a psychiatrist. In Ohio a State Bureau of Juvenile Research has been established which furnishes diagnostic facilities to the juvenile courts and institutions of that state. In Illinois a well known psychiatrist has been appointed state criminologist. In California a bill has passed the legislature providing for a psychiatric clinic in the State Prison at San Quentin; an appropriation of \$30,000 for equipment, maintenance and salaries is included. Growing out of the studies conducted by the National Committee at Sing Sing Prison, through appropriations furnished by the Rockefeller Foundation, New York State is now committed to the adoption of a plan whereby the treatment and handling of future prisoners received into the State Prison will depend chiefly upon the findings of the psychiatric clinic at the central reception prison to which they must all be committed. Studies conducted by the National Committee with funds provided by the Rockefeller Foundation in New York, Georgia, and other states have shown that at least 50 per cent. of the inmates of penal and correctional institutions are suffering from abnormal nervous and mental conditions and are in need of more highly specialized treatment than that which they are receiving in these institutions. Such studies as those

mentioned have shown the possibility in the treatment of a certain number of offenders of removing entirely delinquent tendencies. Healy's work in Boston with children addicted to lying and stealing has opened the way and led to some attempts in several other clinics. If success is attained along these lines, which seems likely, they will represent the most important step in practical criminology yet undertaken. A marked advance in the application of psychiatry to criminology is the decision of the War Department to require a psychiatric examination, before trial, of all officers and men brought before general courts-martial. (See also *Criminology and Penology*, *infra*.)

Uniform Statistics.—A joint committee of the American Medico-Psychological Association and the National Committee for Mental Hygiene has adopted a series of tables providing for uniform statistics regarding the operation of hospitals for mental diseases and certain facts regarding patients admitted and under treatment. These are now in use in 145 out of 156 state hospitals and in several departments of the Federal Government. Information of great value will soon be available regarding the influence of occupation, environment, and other factors upon the prevalence of mental diseases. This ad-

vance has been made possible to a great extent by the financial assistance of the Rockefeller Foundation.

Bibliography.—*Mental Hygiene*, a quarterly journal founded by the National Committee for Mental Hygiene in 1917, contains, besides original articles, reviews and abstracts of book and periodical literature generally. Many of its important original articles are available in the form of separate reprints. The Massachusetts Society for Mental Hygiene also has a series of reprints of important articles in medical journals. The *Canadian Journal of Mental Hygiene*, established in 1919 by the Canadian National Committee for Mental Hygiene, also a quarterly, is planned along the same lines as its prototype. Recent important books on the subject include:

- JENNINGS, Herbert S., and others.—*Suggestions of Modern Science Concerning Education*. (New York, Macmillan, 1918.)
 SALMON, T. W.—“Mental Hygiene.” In *Preventive Medicine and Hygiene* by M. J. Rosenau, Ch. VI. (New York, Appleton, 1917.)
 WELLS, F. Lyman.—*Mental Adjustments*. (New York, Appleton, 1917.)
 WHITE, W. A.—*Mechanisms of Character Formation: an Introduction to Psychoanalysis*. (New York, Macmillan, 1916.)
 —.—*Mental Hygiene of Childhood*. (Boston, Little, Brown, 1919.)
 —.—*Principles of Mental Hygiene*. (New York, Macmillan, 1917.)

CRIMINOLOGY AND PENOLOGY

EDWARD R. CASS

General Summary.—Gradually but surely the public is learning how to deal more sensibly as well as more humanly with offenders against the law. The thought in earlier times was little for the man who went to prison and almost wholly for the community, but the view taken was a shortsighted one, for it overlooked the important fact that nearly all those in the prisons would at some time return to the community. True reforms will be effected only when the people understand that the prisoner is frequently a victim of ignorance, wrong thinking, environment, or mental deficiency, and when the people realize that the proper function of the prison is to make, not break, the man. These needs are recognized and pointed out

in such a statement as the following by Dr. Bernard Glueck, formerly director of the psychiatric clinic at Sing Sing Prison: “The intensive study of the individual delinquent from all angles and points of view must be the aim of the modern criminologist, and consequently of the modern prison administrator.” The legal recognition of reformatory and preventive methods to be applied to the problems of crime has not meant in all instances the successful working out of the purposes of the laws. Now that the war is over, the time seems ripe for frank recognition that to a deplorably large extent our methods of administration of sound reformatory principles like the indeterminate sentence, parole, and probation have been weak often

XIV. SOCIAL AND ECONOMIC PROBLEMS

trivial, and even glaringly automatic. We are still confronted in many instances with the unspeakable county-jail system with the fee plan of compensating sheriffs; antiquated and unhealthful cells for prisoners; inadequate and sometimes shameful employment systems; lack of scientific classification and differentiated treatment of offenders; absence of an adequate and modern educational programme for inmates; lack of central control of state and county penal institutions; the unfortunate persistence of politics as a factor in prison management; and the too frequent prevalence of a system of repressive discipline.

There has been foreign evidence, especially in Great Britain and Germany, that the war resulted in a very serious increase in the volume and character of juvenile delinquency. Reports from American cities also gave indications of a trend in that direction. The end of the war brought us, however, no such definite danger, and we were not faced with the necessity of taking any special measures for the reduction of juvenile or adult delinquency. It had been expected that, judging from experience of years following the Civil War, there would be an increase in the prison population. After the Civil War the rate of commitments was such that we had to build new prisons. Our fears in this respect also proved unfounded. The experience of New York State should serve as a fair guide. On June 30, 1917, 1918, and 1919, the total population of the New York State prisons, reformatories, institutions for women, penitentiaries, county jails, and New York City institutions was 14,997, 11,757, and 11,016, respectively. Many of the county jails have been without prisoners frequently during 1919. The total number on probation in New York State on July 1, 1917, was 14,552; in 1918, 14,564; in 1919, 15,663. The numbers on probation increased rapidly before the war, remained stationary during the war, and have increased since.

In 1917 the Prison Reform League of Pennsylvania framed and secured the passage of legislation empowering the governor of that state to appoint a commission to study penal condi-

tions and make suggestions for their remedy. The commission completed its work in the early part of 1919 and presented to the legislature six important and progressive bills. These measures provided for the establishment of state penal farms for prisoners from the county jails; the placing of all correctional institutions under the state supervision and providing for the medical and psychiatric examination of all prisoners; the establishment of a large farm for the Eastern Penitentiary; abolition of the fee systems in the county jails; introduction of a labor system which would provide work for all prison inmates and dispose of the products to state and county institutions; and, lastly, providing for the appointment of two additional members to the State Board of Charities, one of whom should be a woman. Unfortunately this splendid programme of reform legislation failed.

Criminology.—At the Elmira Reformatory, New York, a further study of the individual prisoner has been made by Dr. John R. Harding, resident psychiatrist (*cf* *A. Y. B.*, 1918, p. 438). The result of his examination of 1,000 Reformatory inmates, some of them immediately before discharge from the Reformatory and some immediately after admission, indicates that the inmates now received at the Reformatory are largely of men of bad heredity and poor education. It was found that only 20 per cent. of the immediate ancestors of the men were strictly abstemious, whereas 80 per cent. had an alcoholic history. In 72 per cent. of the cases there had been in the family cases of insanity, chorea, hysteria, and epilepsy. The educational record of those examined was very poor, and 17 per cent. of the total were found to be defective delinquents, that is, not only stupid and unteachable, but also showing strong tendencies to commit crime. Even more surprising were the findings from the physical standpoint, 70 per cent. of those examined showing one or more stigmata of degeneracy, 59 per cent. irritable heart, and 50 per cent. defects of vision. In the face of such statistics Dr. Harding wonders why there should be such strong opposition to sterilization of the con-

firmed criminal degenerate. He firmly believes that it is essential to establish psychological laboratories in connection with the public-school system, so as to save the retarded child from becoming permanently backward. It is his belief that only through a practical community interest in such prophylactic measures as these can we ever hope to stem the tide of crime and degeneracy.

A progressive step was taken in California by the introduction of a bill to create a 'department of psychiatry and sociology at the San Quentin Penitentiary. Likewise, in New York State the Prison Commission, subsequent to their survey relative to mental disease and delinquency (*A. Y. B.*, 1918, p. 439), presented a bill to establish permanently a psychiatric clinic at Sing Sing Prison, to operate as a clearing house for all male prisoners sentenced from any prison district in the state or to the Elmira Reformatory. If this bill had become law, it would have permitted the continuation of the splendid work done at Sing Sing Prison by the original psychiatric clinic subsidized by private funds. (See also *Mental Hygiene*, *supra*.)

An interesting study of 1,000 cases was made in the Municipal Court of Boston by Drs. Anderson and Leonard to determine the relation, if any, which the physical condition of offenders bore to their economic efficiency. Of these cases 65.8 per cent. were in good or fair health, and 34.2 per cent. were in poor or bad health and in such physical condition as to warrant urgent medical treatment. About 62 per cent. were considered self-supporting. Thirty-five per cent. of those found to be in good or fair physical condition had been steadily employed, whereas only two per cent. of those found to be in poor or bad health had been steadily employed. It was shown that the chances for being self-supporting were more than four to one in favor of the individual in good physical condition. A study of 600 consecutive cases to determine the frequency of venereal diseases showed that 47 per cent. of the individuals were suffering from such diseases, and an additional 4.5 per cent. had doubtful bloods and smears.

Probation and Parole.—There have been no conspicuous changes in the administration of probation during the year. The increase in the number of those placed on probation would tend to show that this system of dealing with the offender is becoming more popular with the courts. Pleas for additional probation officers are general throughout the country. It is felt that a great injustice is done to the system by the assignment of too many cases to one officer and the continued use of probation for definitely feeble-minded, confirmed inebriates, or habitual offenders. The need of more thorough investigation, particularly prior to the disposition of cases, is urged. In New York State a bill was introduced at the request of the State Probation Commission, providing for the appointment of one or more salaried county probation officers in every county. This legislation unfortunately failed of passage. Likewise, a proposed constitutional amendment granting equity jurisdiction to juvenile and domestic relations courts was held in committee.

The various state legislatures have not been especially active on the subjects of the indeterminate sentence, the parole system, or pardon. California, Nebraska, Maine, Oregon, Tennessee, Vermont, and Wisconsin effected changes in phraseology and, in some instances, in essential features of their laws.

Capital Punishment.—There are now 10 states in which the death penalty has been completely abolished and two others in which it is retained only for the crime of treason, so that they may fairly be included with the former. These states are:

	Date of Abolition
Arizona 1	1916
Kansas 2	1907
Maine 3	1876
Michigan 1	1847
Minnesota	1911
Missouri	1917
North Dakota 4	1915
Oregon	1914
Rhode Island 4	1852
South Dakota	1915
Washington	1913
Wisconsin 5	1853

1 Treason is punishable by death.
2 There have been no executions in Kansas since 1872. 3 In 1882 the death penalty was reestablished in Maine but abol-

XIV. SOCIAL AND ECONOMIC PROBLEMS

Capital punishment is retained in 36 states. All of them punish the crime of murder in the first degree with death, but in only 12 of them is the death penalty arbitrarily imposed on all persons convicted of this crime. The other 24 give to the jury or the court power to fix the sentence of death or life imprisonment. Twelve states apply the death penalty to only one offense, nine to two offenses, and the other 15 to three or more.

The main argument always advanced in support of capital punishment is that it serves as a deterrent. In every state where the extreme penalty has been abolished, murder, according to all statistics, has decreased. For instance, in 1914, in Oregon 13 persons were sentenced to life imprisonment for murder, and in 1916 only four were sentenced. In that state capital punishment was abolished in November, 1914, and since that time the number received on the charge of murder has at no time equalled those of previous years. That the death penalty does not deter might be proved by the fact that there have been more inmates in the death house at Sing Sing Prison during the year 1919 than ever before.

Lynchings.—In 30 years there have been 2,514 lynchings of negroes and 702 of whites in this country. In all of these cases it is stated that there have been no convictions subsequent to the usual criminal court procedures. In fact, in each instance mob spirit dominated the law. Statistics of lynchings for the first 10 months of 1919, obtained from the National Association for Advancement of Colored People, show that the total number of lynchings was 61, of which two were whites, 57 were negroes, and two were Mexicans. The lynchings were reported as follows: one of the victims was cut to pieces; 18 were shot; one was beaten; 15 were hanged; 10 were burned; in 15 cases the method employed was not reported. The alleged causes for the lynchings were as follows:

Attempting to pull white woman from horse	1
Trouble between white and colored in mill	1
Assault on white woman	12
Murder	15
Insult to white man	1
Shooting officer	1
Postponement of trial for murder	1
Attempted assault	2
Insulting white woman	3
Shooting white man	3
Shooting two white men	3
Attempted assault on white woman	1
Result of race riot	1
Talking of Chicago riot	1
Not turning out of road for white boy in automobile	1
Leader among negroes	1
Misleading mob	1
Circulating incendiary literature	1
Boastful remarks re killing sheriff	1
Intimate with white woman	2
Murder and assault	1
Insulting note to white woman	2
Found under bed in white man's house	1
Writing insulting note for soldier	1
Talking too freely re lynching	1
White woman said she wanted to marry him	1
Altercation with white man	1

The states in which lynchings occurred and the number in each state were as follows:

Arkansas	5	Mississippi	10
Colorado	2	Missouri	1
Alabama	8	Nebraska	1
Florida	4	North Carolina	2
Georgia	17	South Carolina	1
Louisiana	7	Texas	3

Prison Labor.—A struggle is going on in the various states to establish a better prison-labor system with a view to putting each man at work at the thing he is fitted for, to keeping him at it, and, above all, teaching him how to work by the best and most efficient methods. There is a growing feeling that prisoners should be justly compensated for their labor and by such a system be enabled to provide for their own future and for their dependents. It has been found that in 70 per cent. of the prisons no trades are taught, and in 54 per cent. no wages are paid; in 10 per cent. however, bonuses were paid during the year for overtime work. Twenty-nine states were found to have no employment for their prisoners. Six others during the year provided only part-time work. Almost universal idleness prevails in the county jails, and in many states the contract system of privately hired labor is in vogue. In some states the sale of the products of prison labor is

ished again in 1887. 4 A convict serving a life term for murder, upon conviction of a murderous attack upon a guard or keeper, can be condemned to death. 5 There were only three executions in Wisconsin prior to abolition of capital punishment.

restricted to state institutions, whereas in others these products are sold in the open market. In connection with the latter it is interesting to note that one of the American proposals submitted to the Peace Conference Commission on International Labor Legislation "bars from international commerce the products of convict labor."

During the year Dr. Hasting H. Hart of the Russell Sage Foundation was invited by the governor of Alabama to make a social survey of the state. In dealing with the subject of prison labor Dr. Hart found that under the lease system 3,000 convicts contributed \$775,000 towards the expenses of the state. The convicts are leased in three coal-mining camps, a turpentine and a lumber camp, and in a state-owned cotton mill. At the camps the men may work on their own account after finishing their task for the state: two-thirds of the men take advantage of the opportunity and earn from \$3 to \$20 and even \$40 per month. There was no similar chance at the cotton mill until the summer of 1918, when the state received a Federal Government contract; to increase the output the convicts voluntarily agreed to have the hours of labor increased from 11½ to 13½ a day. They were then paid extra at the rate of one dollar per week. The convicts earned \$847 by means of this bonus during the month of June. The financial showing is the brightest part of the picture, but physically and morally the lease system is highly objectionable; and even at the cotton mill conditions of living are bad. Alabama, Texas, and Georgia stand alone as exponents of this system of exploitation. Prisoners may spend their earnings in any way they choose. To some extent they may buy food and clothing, usually at an exorbitant price. Gambling is permitted, and Alabama thus furnishes the spectacle of men, sent to prison for gambling, gambling with their prison earnings. An attempt was made during the 1919 session of the Alabama legislature, to abolish the lease system, but unfortunately the bill failed of passage in one house, and the present system must continue at least until the next session of the legislature, which is four years hence.

The employment of prisoners on highways continues to be popular. There are 30 states having laws which provide for the work of their prisoners upon the public roads. The manufacture of automobile license plates has been introduced as a prison industry in several states, Wisconsin, Ohio, New Jersey, and New York. Massachusetts and other states contemplate this addition.

New Institutions.—The difficulty of obtaining materials for construction has handicapped the building of new state and county institutions. Ohio has started work on the construction of a new penitentiary. A special commission appointed by the Connecticut legislature has made its report to the governor, and has recommended the purchase of a new site and the construction of a new state prison to take the place of the Wethersfield Prison, which is felt to have outlived its usefulness.

Miscellaneous.—Governor Smith of New York in his inaugural message urged a thorough and comprehensive study of the New York prison system; the superintendent of prisons appointed a commission to make such a study, and it is expected that a report, together with necessary legislation, will be submitted soon. An interesting experiment in partial self-government is in progress at the military prison on Governor's Island, New York. The self-government plan continues at Sing Sing and Auburn prisons in New York State in a greatly restricted form. Thomas Mott Osborne is still in charge of the Naval Prison at Portsmouth and continues to report favorable progress in his work. He states that of the 6,395 men who were prisoners at Portsmouth during the War, 2,500 had been restored to the service. In two years it is claimed that only six prisoners escaped. The only physical barrier to escape was an ordinary wire fence and four guards stationed around the prison.

Personal.—D. S. Dickerson of Nevada has been appointed superintendent of the Federal prisons, and A. V. Anderson has succeeded Colonel Rice as head of the Fort Leavenworth prison. Dr. Mary Thompson Stevens has been appointed as warden of the

Detroit House of Correction; this prison was at one time regarded as one of the worst in the country. William H. Homer, warden of Great Meadow Prison, Comstock, N. Y., died; he had successfully conducted the honor system on a large scale. The Westchester County Penitentiary, taken over by the Federal Government for convalescing soldiers, has been returned to the county authorities. The former Deputy-Warden Warren McClelland was promoted warden. This institution from the structural standpoint is in many respects the best in the country.

Bibliography.—Prominent among the important publications of the year are the following:

BOWERS, P. E.—“A Survey of Twenty-five Hundred Prisoners in the Psychopathic Laboratory in the Indiana State

Prison.” (*Journal of Delinquency*, Jan., 1919.)

“Cook County and the Mentally Handicapped. A Study of the Provisions for Dealing with Mental Problems in Cook County, Illinois.” Report of Survey, 1916-17. Prepared by Herman M. Adler, M.D. (New York, National Committee for Mental Hygiene, 1918.)

GODDARD, H. H.—*Psychology of the Normal and Subnormal*. (New York, Dodd, Mead, 1919.)

JACCCBY, S. W.—*The Unsound Mind and the Law: a Presentation of Forensic Psychiatry*. (New York, Funk & Wagnalls, 1918.)

LANE, Winthrop D.—A series of articles based on personal investigation in Kansas in the *Survey* of Feb. 15, May 31, July 5, Sept. 6, and later dates.

PARMELEE, Maurice.—*Criminology*. (New York, Macmillan, 1918.)

“The Social Work of the Court.” Annual report and proceedings of the National Probation Association, 1918.

WINES, F. H.—*Punishment and Reformation: a Study of the Penitentiary System*. Revised ed., with additional chapters by Winthrop D. Lane. (New York, Crowell, 1919.)

SOCIAL WORK OF THE CHURCHES

CLINTON ROGERS WOODRUFF

Roman Catholic.—At a council of the bishops of the Roman Catholic Church held in Baltimore, Sept. 24-25, at the call of Cardinal Gibbons with the approval of the Pope, it was agreed to establish a National Catholic Welfare Council to further the religious, educational, and social wellbeing of the Church in the United States, to aid the Catholic press and to promote Catholic publicity, to assist all recognized agencies engaged in foreign and home missions—in a word, to provide regularly and efficiently for all the public interests of the Church in the United States. The Council is made up of bishops only, but the administrator of any see is entitled to a seat at the meetings and enjoys a vote. In this capacity the bishops will hold an annual meeting, and for the purpose of conducting its business in the interval between meetings, an administrative committee has been appointed consisting of seven members. These members are Archbishop Hanna of San Francisco, chairman, Archbishop Dougherty of Philadelphia, Archbishop Dowling of St. Paul, Bishop Canevin of Pittsburgh, Bishop Muldoon of Rockford, Ill., Bishop Russell of Charleston, S. C., and Bishop Schrembs of Toledo, Ohio.

The work done during the war by the National Catholic War Council was conducted by a number of committees, all of which did more or less social work. The Committee on Special War Activities was subdivided. There was one committee on men's activities, of which Michael J. Slattery was secretary; another on social reconstruction, Rev. Dr. John O'Grady, secretary; and another on women's activities, of which Rev. John Cooper was secretary. Rev. John J. Burke was chairman of the general committee under which these worked. The National Catholic War Council has issued a series of 12 pamphlets dealing with many aspects of social work. Its headquarters are at 1312 Massachusetts Ave., N. W., Washington, D. C.

Protestant Episcopal.—The third triennial report of the Protestant Episcopal Joint Commission on Social Service (Bishop C. B. Brewster, chairman, and Rev. Frank M. Crouch, secretary) was submitted to the General Convention of the Church held in Detroit in October (see also XXVII, *Religion*). It is partly a record of progress and partly a tract for the times. Like the report submitted in 1916, it is intended primarily to be

XIV. SOCIAL AND ECONOMIC PROBLEMS

educational. The first part records the war work and discusses the reconstruction problems, the rural-church problem, and lay training for social work. The second part is devoted to special problems, including industrial relations, Americanization, immigration, public health, and the country church. The third part is devoted to recommendations. The headquarters of the Commission are at 281 Fourth Ave., New York.

For six years the Joint Commission functioned as an undifferentiated organization within the Church. After 1919 the Commission as such will cease to exist and the work will be carried on by the Department of Social Service of the Executive Council established by General Convention at Detroit. The Department will be in charge of the following members of the Council: the Bishop of Georgia, Rev. James E. Freeman, Minneapolis, Frederick C. Morehouse, Milwaukee, the Bishop of Newark, H. S. Wyckoff, of California, and Harper Sibley, Rochester, with the following associates: Bishop Brewster of Connecticut, John M. Glenn, of the Russell Sage Foundation, Clinton Rogers Woodruff, Philadelphia, and Rev. W. Russell Bowie, Richmond, Va.

Presbyterian.—The Presbyterian Social Service Commission (Rev. Paul M. Strayer, Rochester, chairman) was constituted by the Northern General Assembly to help create a better understanding of the social implications of the Gospel and to help the Church to apply the Gospel to the life of today to the end that society may be reconstructed and the world reorganized so as to eliminate injustice and wrong and to make war forever impossible. Its purpose was to help create a new state of mind in the Church, so that Church people might think in terms of the community, the nation, and the world, as well as of the parish, the church board, and the denomination. It was called into being in order that it might stimulate the Presbyterian Church to function in new and effective ways in the moral, economic, and political life of the people. The major emphasis of the Commission during 1919 has been upon the study of some of the problems of the reconstruction period. For this purpose a

study outline was prepared, in collaboration with a group of men and women having special knowledge in their respective fields. This outline has been used by the Federal Council of the Churches of Christ in America, by Jewish churches, by the Y. M. C. A., the Y. W. C. A. and other kindred organizations. The headquarters of the Commission are at 156 Fifth Ave., New York. Rev. John McDowell, D.D., is secretary.

Methodist Episcopal.—Rev. Harry F. Ward, secretary of the Methodist Episcopal social work, spent every Sunday, with the exception of July and August, in the field, a large number of addresses being before open forums. Many week-night addresses for various groups have also been given. The assistant secretary taught in three denominational summer conferences and two Y. W. C. A. conferences and spent four days at the National Women's Trade Union League Convention, as a representative of the Social Service Commission of the Federal Council of Churches of Christ, and four weeks speaking in conferences for general secretaries of the Y. W. C. A.

Baptist.—The educational side of the Northern Baptist social work is carried on by Rev. Samuel Zane Batten, 1701 Chestnut St., Philadelphia, and the other phases are looked after by Roloix Harlan and James Foster Wilcox. They publish *Social Service News*, a monthly.

Federal Council of the Churches of Christ.—The work of the Federal Council of Churches of Christ largely increased during war time, requiring the enlargement of the staff by four secretaries and six office assistants. It has pioneered new fields for boards of home missions; it carried forward a study of the centers of war industries; 115 other communities have been visited and surveyed; it has established seven liberty churches; it has studied the work of women industrial workers and negro welfare and conducted an elaborate study of logging camps and their special needs. All of this has been in addition to carrying on its regular work. Its headquarters are at 105 E. 22d Street, New York City. Rev. Worth M. Tippy is secretary.

THE LIQUOR PROBLEM

JOHN KOREN

Legislation.—On Jan. 29, 1919, the Department of State issued a proclamation declaring the prohibition amendment to the Federal Constitution to have been ratified by the requisite number of state legislatures on Jan. 16 and that, in accordance with the wording of the amendment, it would become effective after the lapse of 12 months from that date, or on Jan. 16, 1920 (see also I, *American History*).

With the exception of New Jersey, Connecticut, and Rhode Island, all the states have given their assent to the measure. The year of grace allowed by the Eighteenth Amendment was in order that liquor manufacturers and dealers might have time in which to liquidate their business and wind up their affairs. Meanwhile, the War-Time Prohibition Act so-called was agreed upon by the Congress. It was enacted 10 days after active warfare had ceased (Nov. 21, 1918), to become effective on July 1, 1919 (*A. Y. B.*, 1918, pp. 18, 442).

At the beginning of the year the production of beer, except that of the "near" variety, was stopped as a food-conservation measure. But even after war-time prohibition became effective, the so-called 2.75 per cent. beer was manufactured in several states on the plea that it is a non-intoxicating liquor, lacking a legal definition by the Congress of the quantity of alcohol a beverage must contain to come under the prohibited class. The legislature of Rhode Island has taken this matter into its own hands by declaring all liquors of less than four per cent. alcohol to be non-intoxicating.

Almost a year after the signing of the armistice on Oct. 28, 1919, the Act known as the "Prohibition Enforcement Act," but commonly called the Volstead Act, became law over the President's veto. This Act combines provisions for the enforcement of war-time prohibition and of prohibition under the Eighteenth Amendment. Under the Volstead Act all liquors containing one-half of one per cent. of alcohol or more are declared to be intoxicating and hence prohibited.

The duty of enforcing the provisions of the Act are vested in the Commissioner of Internal Revenue, although it likewise rests upon state and local officials. In general, the law contains every legal device whereby the manufacture and sale of intoxicating liquors of every kind, as well as their importation and transportation, may be prevented. And to make the penalties for alleged violation the more certain to be imposed, there are provisions which make it easy to dispense with trial by jury and other usual processes of law, to punish indirect or passive violations, to take away and sell property on account of the illegal use of it by another person than the owner, to put the burden of proof of innocence upon the accused, etc. The regulations governing the prescription of liquors by physicians and the procuring of wine for sacramental purpose are drastic. The possession of intoxicating liquors purchased prior to war-time prohibition is not prohibited, except that they may not be kept in certain dwellings. The production of "non-intoxicating cider and fruit juices" at home is permitted by the Act, provided they contain not more than one-half of one per cent. of alcohol.

War-time prohibition was to remain in force "until the conclusion of the present war and thereafter until the termination of demobilization, the date of which shall be determined and proclaimed by the President"; thus the Volstead Act, the need of which, so far as it deals with war conditions and demobilization, the President declared to have passed. The question of the constitutionality of war-time prohibition has undergone test in the United States courts. In Kentucky and Rhode Island it was held to be unconstitutional, but in New York the law was upheld. It was finally held to be valid by the U. S. Supreme Court on Dec. 15. Meanwhile suits are pending to test the legality of the ratification of the Federal prohibition amendment in some states where it was not submitted to a popular vote although a referendum is required under state law. The Supreme Courts of Ohio

and Washington have decided that the amendment should have been referred to the people for a decision. In Oregon the highest court held that such a referendum was not necessary. (See also I, *American History*.)

The Elections.—In New Jersey the liquor question was the main issue in the November election, and the Democratic candidate for the governorship was elected on anti-prohibition platform. The voters of Ohio rejected the so-called Crabbe law for the enforcement of the state prohibitory amendment (an act that served as a model for the Volstead Act) by a majority of about 26,000 votes, voted down a proposition to legalize the sale of 2.75 per cent. beer by nearly the same majority, refused to ratify the Federal prohibition amendment by a majority

of 542 votes, and sustained the state prohibition law of 1918 by a majority of more than 41,000. The conflicting results of the election were no doubt due in part to the confused system of balloting that prevails in Ohio. The voters of Kentucky adopted a state prohibition amendment. In Massachusetts the senators and representatives elected to the legislature were "instructed" by a majority of the voters in all the cities and towns in which the question was submitted to legalize the sale of four per cent. beer, many habitual no-license communities favoring this measure. In Queens County, New York, a county judge was elected as an anti-prohibitionist. In earlier elections in Connecticut nearly all the "dry" towns gave majorities against prohibition.

SOCIALISM

CARL D. THOMPSON

United States.—The situation in the Socialist movement in the United States during the year has been characterized chiefly by controversy and division of forces within the Socialist-Party organization, by the devotion of most of the energy of the organization to the defense of its imprisoned leaders and censored press. In spite of these difficulties, however, the movement has shown rather surprising virility, and although the membership of the Socialist Party has considerably decreased, the vote, wherever recorded, seems to have held well up to the former marks. The membership of the Party at its highest point during 1919 reached 108,000, which was considerably more than the average of the preceding year. After the splits in the Party, the membership dropped to about 25,000, but late in the year it was steadily growing, it was claimed, and stood in December somewhere near 50,000.

The vote of the Socialist Party during the year has been recorded only in certain localities, there having been no general election. Where the vote was taken, the Socialist Party has shown very good results. In New York City, for example, the vote reached 140,000, and the Socialists elected five assemblymen and six aldermen. In Chicago the Socialist Party cast 20,000 votes

in the general election in the fall, which was about double the vote of the Labor Party, which had entered the political field for the first time in Chicago in the spring of the year. In Buffalo the Socialists cast 47,102 votes, which was the highest ever reached, and elected Frank Perkins commissioner for four years. In Dayton, Ohio, the Socialists carried 55 precincts and cast 10,000 votes. In Toledo the Socialist candidate for Mayor received 15,000 votes.

A National Emergency Convention was called by the Socialist Party late in the summer for the purpose of discussing questions of party controversy and other matters. Some 200 delegates attended this Convention. As a result of the deliberations, it was found that the various factions could not agree. The so-called "Left Wing" therefore withdrew from the Convention. This "Left Wing" afterwards split into two factions which could not agree. There thus were left three distinct divisions of the Party, the Communist Party, the Communist Labor Party, and the Socialist Party. The latter represents the usual American Socialist organization and has adopted the programme and platform which has heretofore prevailed in America. The other two factions both tend to the more radical and "impos-

sibilist" policy and programme. They both sought to have the Socialist Party abandon the field of political action.

The Socialist press of the United States has practically all been still under the ban of the censorship, and practically all the journals that have kept up publication have done so without the usual mailing privileges. This, of course, has very seriously limited the circulation of the Socialist papers. The *New York Call* and the *Milwaukee Leader* have managed to keep up a circulation in one way or another, and several weekly papers, including the *Chicago Socialist* and the *Eye Opener*, have managed to appear.

Prominent leaders of the Party are still imprisoned. Eugene V. Debs, Kate Richards O'Hare, and several others are serving sentences in Federal prisons. Much of the funds and activity of the Party organization have been engaged during the year in the defense of these imprisoned members and efforts to secure their release. Victor L. Berger, who was one of the indicted leaders, was convicted on Feb. 20 and sentenced to a 20-year term. He had been elected in 1918 to the United States Congress, and after a long contest he was finally refused his seat and excluded from the House. Almost immediately following this action a special election was called in Berger's district in Milwaukee, and he was reelected, this time by an overwhelming majority. Action has again been begun to refuse him a seat. Adolph Germer, former secretary, William F. Krause, Irwin St. John Tucker, J. Louis Engdahl, and others convicted with him are still awaiting a review of the case in the higher courts. (See also I, *American History*.)

Russia.—The Russian Socialist Federal Soviet Republic on Nov. 7 entered upon the third year of its existence, having been founded on Nov. 7, 1917. The outstanding feature of the movement in Russia during the year has been the rapid consolidation of the military forces of Russia under Trotzky and the Socialist organization of the internal affairs of the country under Lenine. The forces of opposition, which have

been many, seem to have been gradually driven back and beaten. The Yudenich forces operating against Petrograd capitulated early in the fall; the Kolchak forces were driven out of Omsk and other enemies more or less definitely overcome. Meanwhile, the military forces of the republic have been undergoing gradual consolidation. The internal forces of the country have been reorganized along the lines of extreme Socialist principles in the following respects: (1) the banks and all the financial institutions have been nationalized; (2) the various industries have been remodeled, nationalized, and organized under the workers' control; (3) the land has also been nationalized and handed over to the peasants. The Soviet Republic has been hindered in its development not only by the attacks of enemies from without but also by counter-revolutionists from within. It has thus been fighting a double warfare while at the same time undertaking the reconstruction of the social and economic order. (See also III, *Russia*.)

Great Britain.—The development of Socialist sentiment and organization in connection with the labor movement in Great Britain has been very rapid during the year. In the fall elections the labor forces won a sweeping victory in the municipalities throughout England. The great majority of the Socialists of England have adhered to the more moderate programme of the labor groups. The British Socialist Party, one of the smaller and more radical of the Socialist groups, voted at its conference to join the Third International, which was organized at Moscow and follows the soviet form of organization and propaganda.

Germany.—The Socialist movement in Germany is still hopelessly divided. Several attempts were made during the year to bring about a reconciliation between the Independents and the Majority Socialists. They have all failed. (See also III, *Germany*.)

France.—In the general election held in France Nov. 23 the Socialists cast upwards of 1,700,000 votes, an increase of 600,000 over the number cast in 1914. The Socialists increased their proportion of the total vote from

XIV. SOCIAL AND ECONOMIC PROBLEMS

16 per cent. in the previous election to 28 per cent. in 1919. They will have 75 deputies in the new Chamber. (See also III, *France*.)

Italy.—Over 2,000 delegates attended the Italian Socialist Congress held at Bologna in October. In the November elections the Socialist Party made great gains. It is the leading single political party in the new Chamber of Deputies. The Chamber will be composed of 155 Socialists, 220 Constitutionalists, 102 Catholics, and other Republicans. (See also III, *Italy*.)

Belgium.—In the elections in Belgium the Socialists received 644,449 votes, the highest number cast for any party. The Catholics cast 618,505; Liberals, 309,463; Christian Democrats, 45,197; Front Party, 42,173; Middle Classes, 22,543; National Regenerationists, 14,432. The Catholics elected 73 deputies, a loss of 26; the Socialists elected 70, a gain of 30; and the Liberals 34, a loss of 11. (See also III, *Belgium*.)

Switzerland.—The Socialists gained 19 new seats in the Swiss National Council in the elections, giving them a total of 39. At a conference held at

Basle the Swiss Socialist Party decided by vote of 318 to 147 to join unreservedly the Third (Moscow) International. The conference refused to attempt any form of union or coöperation with the Second International, representing the Socialist organization prevalent before the war.

Norway.—In the elections in Norway the Socialists cast 250,000 votes and elected 52 members of Parliament. The party is said to be strongly in sympathy with the Soviet Government of Russia.

Bulgaria.—In the general elections in Bulgaria in August the "Peasants of the Left" elected 72 members; the "Peasants of the Right," 13; "Narrow," or Communist Socialists, 47; "Broad" Socialists, 39. Thus the groups of the "Left" have the majority of the Parliament. The victory has made a deep impression upon the Socialists of Serbia, Rumania and Greece.

Czechoslovakia.—A congress of the Czecho-Slovak Social Democratic Party was held in October. Over 300 delegates attended. The Socialist movement has shown a steady growth during the year.

IMMIGRATION

FRANK JULIAN WARNE

Immigration During the War.—From July 1, 1914, to June 30, 1919, comprising the entire period of the Great War, there was contributed to the population of the United States through immigration a total of 1,172,679. This number is 35,801 less than was contributed in the single year 1914 immediately preceding the beginning of hostilities. Thus is briefly summarized the relative effects of the European War upon immigration to this country. The lowest number of arrivals in any single one of these five years was 110,618 in 1918, the smallest yearly immigration since 1862. For the fiscal year ending June 30, 1919, the number of immigrant arrivals was 141,132.

Immigration in 1919.—More than three-fourths, as much as 78 per cent., of the immigration of 1919 was confined to eight races, each of which contributed more than 5,000. These races, with the number of arrivals ar-

ranged in the order of their numerical importance, are as follows:

Japanese . . . 10,056	Mexican . . . 28,844
Scandinavian 8,261	English . . . 26,889
Irish 7,910	French . . . 12,598
African 5,823	Scotch . . . 10,364

These statistics, from the Bureau of Immigration of the U. S. Department of Labor, record the largest annual inflow of Mexicans to the United States in the history of immigration to this country, and they reflect a deliberate policy on the part of the Federal immigration authorities to encourage, during the war, the coming of these particular aliens to meet the great need for labor. On April 12, 1918, special regulations were issued by the Secretary of Labor, under proper authorization, setting aside the provisions of the law governing the admissions of aliens as regards the application of the literacy test, the payment of the head tax, and the contract-labor prohibition clause as applied to immi-

grants from Mexico, Canada, and the West Indies (*A. Y. B.*, 1918, p. 471). Special provision was made, however, for the return of these aliens when there was no longer need for their labor. The result of this policy is reflected in the fact that both the Mexican and Canadian border stations of entry for aliens record a larger number of such arrivals in 1919 than the port of New York, which long held the distinction of being the premier port of entry of aliens.

Through the Canadian border stations in 1919 there entered as many as 58,234 aliens, and through the Mexican border stations, 28,538; through the port of New York there arrived only 26,731. These arrivals comprised 80 per cent. of the total immigration for the fiscal year. San Francisco came fourth with 9,121 arrivals, the great majority of these being Japanese. The total arrivals of this race, 10,056 as given in the table above, represent the largest number of arriving Japanese aliens in any single year since 1908 with the exception of the year 1918, when the number was but 112 larger. The English, French, Irish, Scotch, and Scandinavian immigration recorded in the above table is considerably less than the average of these races over preceding years.

As many as 93,216 of the total of 141,132 immigrant arrivals in 1919, or as much as two-thirds, were distributed in only six of the states. New York was the destination of 28,715, Texas of 21,629, California of 16,575, Massachusetts of 11,408, Michigan of 8,490, and Washington of 6,399. No other state received as many as 5,000. In addition to the 141,132 immigrant aliens admitted in 1919 there were also admitted at the various ports 95,889 non-immigrant aliens, making total arrivals of 237,021. Non-immigrant aliens are those coming here for temporary purposes only and not for permanent residence.

Emigration.—In determining the net gain to the population of the United States through immigration in 1919, the 141,132 immigrant arrivals have set against them the 123,522 emigrant alien departures, a net gain in permanent alien residents, not allowing for deaths among aliens already here, of 17,610. In addition, there

was a gain of 3,180 as between the 95,889 non-immigrant arrivals and the 92,709 non-emigrant departures, a total gain for the year of 20,790. In 1917 this gain was 216,498. The extent of the movement of aliens permanently from the United States because of the changed conditions in European countries brought about by the war is shown in the fact that in 1919 emigrant alien departures in that year numbered 123,522, as compared with 94,585 in 1918 and 66,277 in 1917. Here is an increase in permanent departures over 1918 of 28,937 and over 1917 of 57,245. This tendency is likely to be still further increased as soon as economic and political restrictions are removed from steamship travel.

Legislation.—Further immigration restriction by national legislation, notwithstanding the enactment by Congress in 1917 of the bill embodying the literacy test over President Wilson's veto, was sought in the Sixty-Sixth Congress by the introduction in the House of Representatives by the Committee on Immigration and Naturalization of a bill embodying the principle of immigration suspension for a period of four years following the termination of the war. This measure received the official support of the American Federation of Labor. Numerous other bills affecting immigration were also introduced in both the House and Senate, none of which came to vote.

Deportation.—In the administration of the immigration laws during the year the question of deportation was emphasized to an unusual degree through the public clamor against much of the anarchistic agitation of certain foreign elements in the country and by activities of the Federal Bureau of Immigration and other agencies of the Department of Labor (see also I, *American History*). Among the anarchists apprehended and ordered deported was one Lopez, who sued out a writ of habeas corpus for his discharge from custody on the principle that since he was a "philosophical anarchist," he did not come within the class of persons denounced as anarchists and subject to deportation by the Immigration Act of Feb. 5, 1917. The U. S. District Court at New York dismissed the petition, and appeal was taken by Lopez to the Cir-

cuit Court of Appeals. In cases of alien anarchists ordered deported, the Secretary of Labor refused the appeal of their attorneys that they be permitted voluntarily to leave the country, the reason given for the refusal being that voluntary departure would operate to relieve alien anarchists of the penalties imposed by law in the event of their again gaining admission to the United States. In dismissing the petition of Samuel H. Dixon, secretary of the Seattle branch of the Industrial Workers of the World, for a habeas-corpus writ discharging him from custody under a deportation warrant, the U. S. District Court found the conclusion of the Commissioner-General of Immigration to be within the purpose and intent of Congress in enacting Sec. 19 of the Act of June 5, 1917, and the Act approved Oct. 16, 1918, entitled "An Act to exclude and expel from the United States aliens who are members of the anarchistic or similar classes." The Court ruled that under the law the conclusion of the Department of Labor, if there is any evidence, is final.

The scope of this Act affecting anarchists was officially interpreted by the Secretary of Labor as follows:

The Act of Oct. 16, 1918, is clear. Any organization that entertains a belief in, teaches, or advocates the overthrow by force or violence of the Government of the United States, or of all forms of law, or that entertains or teaches disbelief in or opposition to all organized government, or that advocates the duty, necessity, or propriety of the unlawful assaulting or killing of any officer or officers, either of specific individuals or of officers generally, of the Government of the United States or of any other organized government because of his or their official character, or that advocates or teaches the unlawful destruction of property, whether by the publication of literature or through the public speeches or private conversations of its officers or agents, thereby makes its alien members liable to deportation. It is the duty of the Department to enforce this Act. However, every alien taken into custody

under this Act shall have his case considered on its own merits before it is finally disposed of.

Chinese Immigration.—Following a decision of the Circuit Court of Appeals of the Ninth Circuit to the effect that all Chinese persons or persons of Chinese descent applying for admission to the United States are entitled (if not admitted on primary inspection) to an examination by a board of special inquiry like aliens of other races applying for admission, the Bureau of Immigration on March 6, 1919, issued revised rules bringing the procedure in the case of Chinese applicants for admission into substantial accord with that followed in the cases of aliens generally.

Americanization.—An important phase of immigration during the year was the renewed activity on the part of innumerable societies and organizations directed towards the Americanization of the aliens. Manufacturers' associations, labor unions, religious organizations, societies of foreign-born, boards of education, state and city Americanization departments or boards, the War Department of the National Government, women's clubs or societies, colleges and universities, libraries, community center and service organizations, civic committees, the Boy Scouts of America, the Y. M. C. A., the Y. W. C. A., Knights of Columbus, the Red Cross, and a host of similar organizations are now engaged in this laudable and very necessary work if America is to mean to the immigrant and the immigrant is to mean to America all that is vital to a homogeneous people. In May a four-days session of an Americanization Conference was held in Washington under the auspices of the U. S. Department of the Interior. (See also *Organized Social Work, supra*; and *XXX, Education*.)

UNEMPLOYMENT

JOHN B. ANDREWS

Employment Conditions in 1919.—A considerable amount of unemployment in the early months of 1919 was succeeded by autumn by a fairly pronounced labor shortage, though in the latest figures available in October the unusual levels of employment of 1917

and 1918 had not yet been reached. Statistics collected by the U. S. Employment Service from several thousand firms in over 120 industrial centers throughout the country showed a weekly decline in the numbers employed until the middle of April. At

the end of June, when the collection of the figures was discontinued, the numbers employed were 8.75 per cent. less than at the signing of the armistice. According to the same figures, the "surplus" of workers in the localities and plants covered was at its highest point, 322,000, in the middle of February; it was reduced to 98,000 by the end of March. Figures on the number of workers in representative New York State factories, compiled by the New York Industrial Commission, show on the whole a similar trend, though increases did not occur until the month of July.

On Jan. 30 the Secretary of Labor estimated that there were 1,000,000 unemployed in the country, and the Bureau of Labor Statistics was authority for the statement that the number of unemployed increased at the rate of 100,000 a week in the early months of 1919. Unemployment was not found throughout the country but was confined mainly to the industrial centers of the Northeast and Middle West which had had large numbers of war contracts, to eastern cities where a large proportion of the Army was demobilized, and to Pacific-Coast cities where shipbuilding had been checked and where the problem of seasonal unemployment is particularly serious every winter. In January it was estimated that 50,000 were out of work in Detroit, 15,000 each in Bridgeport, Youngstown, Ohio, and San Francisco, 12,000 in Worcester, Mass., and 10,000 each in Philadelphia, Pittsburgh, and Dayton, Ohio. New York City had special difficulties with unemployed soldiers who were unwilling to return to their home towns. As late as June the Federal director of employment for New York State issued a warning that there were plenty of jobs on the farms but not in the city. The South, from which many negroes had migrated north during the war, and many of the western states escaped the problem. By the end of March unemployment had begun to decline on the Pacific Coast and in many industrial cities. On July 3 the Federal Reserve Board, in its country-wide survey of economic conditions, noted that there was "practically no unemployment. Many industries cannot get all the men that they need." Two months later it

found "a general shortage of labor in many sections."

Unemployment Programmes.—As is usual during a period of abnormal unemployment, there was much discussion of the question during the early months of 1919. President Wilson called a conference of governors and mayors on March 3 to canvass the facts of the unemployment situation. The conference adopted resolutions favoring, as methods of improving the state of employment, railroad improvements, lower freight rates on building materials, early settlements with war contractors, lifting of Government restrictions on industry, and the demobilization of soldiers by their local draft boards instead of at the camps. The American Federation of Labor put forward a programme of measures to meet the crisis early in February. It included the appropriation by Congress of a fund to complete all public works postponed on account of the war, the prohibition of immigration for four years, monthly benefits to soldiers and sailors for 12 months after discharge or until they could find work, and development of large-scale Government plans for land reclamation. In California a joint legislative committee on unemployment made in its report the similar recommendations of restriction of immigration, six months' pay for soldiers and their demobilization in their home localities, and, in addition, a thorough study of the seasonal labor problem with a view to devising a plan for stabilizing the labor demand throughout the year, the immediate pushing of public works, and the making of systematic arrangements for regularly pushing public works in times of depression in the future.

Particularly far-reaching and well considered were the policies for unemployment prevention advocated by Governor Smith's Reconstruction Commission in New York State. The Commission's chief recommendations were for a development of the state public employment service until it held a monopoly of the field and meanwhile an improvement in the licensing of private fee-charging agencies, and for an extension of public work in periods of unusual unemployment. Other policies which the Commission wished to

have instituted by the Bureau of Employment in the State Industrial Commission were the dovetailing of seasonal trades, special help to older workers in finding positions, the development of industrial training, guidance of boys and girls away from blind-alley employments, securing facts on the extent of unemployment, and fostering the policy of shortening hours rather than discharging workers in hard times.

U. S. Employment Service.—

Through the failure of Congress to make appropriations, the U. S. Employment Service, which had been expanded during the war into a comprehensive, nation-wide system (*A. Y. B.*, 1918, p. 448), after many vicissitudes during the year was abandoned in the autumn of 1919. Recent figures of the work of the Service during January and February, in which period it was operating on its war-time scale, show that in these two months it made 685,000 placements. New developments of the work in these months of full activity included establishment of a "junior section," of a "farm-labor section," and of a "handicap bureau" to find places for elderly and physically disabled persons, and organization of a two weeks' intensive normal training course for employees of the Service, which opened on Jan. 6 and was attended by 51 persons from 19 eastern states.

In March it was announced that the failure of the Service to secure a deficiency appropriation to carry it to the end of the fiscal year would make it necessary to reduce its activities by 80 per cent. after March 22, cutting the number of local offices from 750 to 56, together with about 2,000 emergency offices for soldiers, sailors, and marines. The representatives of the Service in the demobilization camps were also to be retained. The aid of the President's emergency fund was sought, but he stated that it was too nearly exhausted to permit its use. But the coöperation of individuals, states, and cities, welfare organizations, and the Council of National Defense was obtained, with the result that by March 27, the continuance of 364 local offices until at least the end of the fiscal year was assured. Several legislatures then in session made

special appropriations, among them New York, Ohio, and Tennessee, and in New York City a private banking firm advanced \$100,000 to keep the local offices open. A bill (Kenyon-Nolan bill) embodying recommendations for the continuance of the Service on a permanent basis adopted by a conference of representatives of the various states in April was introduced in Congress but no action was taken on it. For the fiscal year beginning July 1, 1919, the Service asked Congress for \$4,600,000, and received \$400,000. On Oct. 10 the closing of all local offices was ordered on account of lack of funds. It was announced that the Department of Labor would continue to supply information to active state employment services but that the Service's local work was, for the time being, at an end. The American Association of Public Employment Offices, at its annual meeting, determined to broaden the field of its activities in the hope of creating wider interest in the organization.

Placement of Soldiers and Sailors.

—On the whole, the return of the 4,000,000 members of the military forces to civilian occupations was apparently accomplished more easily than many had anticipated. Out of 711,447 soldiers discharged between Feb. 8 and April 19, 108,724 sought Government aid in getting jobs. The percentage needing such aid was highest in the first two weeks of March (33 per cent.), it fell to 20 per cent. by April 10. It was said that the great majority of those not seeking Government aid returned to their former positions. On Sept. 25 the War Department stated that the work of placing the soldiers was practically finished, as only 20,000 to 30,000 still remained out of work. In October, however, the Department announced that the Army must be reduced by 90,000 before the end of the month, which would mean that positions must be found for an additional 20,000 men. At this time the New York Reemployment Bureau for Soldiers and Sailors had about 3,000 men on its lists for whom places were not yet available in the lines for which they had been trained. (See also XI, *The Army*.)

In addition to the organization of special bureaus and the placing of em-

ployment agents in the demobilization camps by the U. S. Employment Service, which had been begun before the end of 1918 (*A. Y. B.*, 1918, p. 450), the War Department early in March announced the appointment of a special assistant to devote himself to the problem. He cooperated with existing bureaus and made special appeals to mayors and Chambers of Commerce in behalf of the discharged soldiers. At the time of the 80 per cent. cut in the Employment Service (see *supra*) the Council of National Defense formed an "emergency committee" to assure the continuance of the employment bureaus for soldiers and sailors, which then numbered about 2,000. Little difficulty was experienced in obtaining funds to operate them during the emergency.

Army demobilization was continued throughout on a military rather than on an occupational basis (*A. Y. B.*, 1918, p. 450). There were but few exceptions to the rule. One special order did permit men to be discharged out of turn in exceptional cases where there was sickness or need in their families or great industrial demand for them. On the other hand, soldiers might stay in the Army on their own written application until they believed they could find employment. No figures have been published as to the numbers discharged and retained under these orders. Some complaints were made that the demobilization of men at the camps instead of by local draft boards tended to increase the number of jobless soldiers in the large cities, far from home, but no action to change the policy resulted. In several large cities former members of the military forces formed themselves into organizations for mutual aid, obtaining jobs, and protecting themselves against undesirable working conditions. Such organizations, under various names, were found in Seattle, Tacoma, Washington, Detroit, Pittsburgh, Chicago, and New York. They worked in close cooperation with organized labor, and their membership was generally held to be radical in tendency.

Public Work.—The very general turning to the resumption of public work as a remedy for unemployment was a noteworthy feature of the crisis

of the earlier part of 1919. Since all but the most pressing work of this character had been postponed during the war, a large number of projects and a considerable amount of money were available for the purpose. The Division of Public Works and Construction in the Department of Labor, which had been formed early in the year to cooperate with the Information and Education Service in stimulating construction, stated in March that it had knowledge of some 6,225 available projects to cost \$1,700,000,000. The Department of Agriculture estimated that \$300,000,000 might be spent for road building during the 1919 season, half of which would go for wages. On Feb. 3 the governor of Ohio called a meeting of mayors and county officials with a view to pushing public works and housing, and soon after it was announced that \$20,000,000 in projects for public works was ready in the five largest cities of that state alone. A similar conference was called by the governor of New York in May, at which it was stated that work to the value of \$155,000,000 was available and that 40,000 men would be employed on highway construction. The governor of Massachusetts first formed a special committee of representatives of capital and labor to stimulate building and construction and later secured an extra appropriation of \$2,479,000 for public improvements. It is difficult to ascertain the exact effect of these and of similar actions by some other states and by a number of cities, but in the opinion of the special employment assistant to the Secretary of War, it was the cause of the reduction in unemployment which began to be noticeable by spring.

Pennsylvania remained the only state which provided for the regular extension of public work in every period of depression (*A. Y. B.*, 1917, p. 405). The operation of the Pennsylvania law was facilitated by the opinion of the state's deputy attorney-general that the appropriation of \$40,000 to serve as the nucleus of a fund for the purpose did not lapse at the end of the regular appropriation period but could be carried over.

Several bills were introduced in Congress providing for Federal and state cooperation in the reclamation

and colonization of waste lands by soldiers, according to plans put forward by the Secretary of the Interior (see also IX, *Public Lands*, and *Reclamation*). None of these had been acted on at the end of the year. In April the National Catholic War Council put forward a similar plan for land colonization and announced that it had made an initial appropriation of \$300,000 to start a project of this kind.

BIBLIOGRAPHY

- BLOOMFIELD, Daniel.—*Employment Management*. (New York, H. W. Wilson Co.)
- COLVIN, F. H.—*Labor Turnover, Loyalty and Output*. (New York, McGraw-Hill.)
- LINK, H. C.—*Employment Psychology* (New York, Macmillan.)
- SLICHTER, Sumner H.—*The Turnover of Factory Labor*. (New York, Appleton.)
- SMELSER, D. P.—*Unemployment and American Trade Unions*. (Baltimore, Johns Hopkins Press.)

XV. LABOR AND LABOR LEGISLATION

LABOR

JOHN B. ANDREWS

INTERNATIONAL RELATIONS

Labor's International Problems.—

America's increased participation in international affairs which followed her entrance into the Great War was reflected during the year in several important developments in international labor relations. The American Federation of Labor, however, declined to attend the first international labor conference to take place after the signing of the armistice. Concurrent conferences of Socialists and trade unionists were held at Berne, Switzerland, opening Feb. 3, at which 27 countries were represented, including the Central and several neutral powers as well as most of the Allied nations. Delegates sent abroad by the American Federation of Labor declined to join in the conference on the grounds that it was called without due authority by certain English labor leaders, that its demands would be largely "German-made" and would not provide the Peace Conference with a clear statement of the position of Allied labor, and that it was held in neutral territory. The American labor representatives tried to arrange a conference of Allied labor at Paris as a substitute but were not successful. The Berne Labor Conference attracted less attention than the contemporaneous Socialist Conference, but drafted a plan for international labor standards for the Peace Treaty which were later accepted by the Socialists. It also passed a resolution endorsing a "people's" League of Nations.

American delegates did attend an International Trade-Union Conference in Amsterdam during the fortnight ending Aug. 2, the main work of which was to organize a permanent International Trade-Union Bureau. The course of the Conference was marked

by violent controversies between the American and German delegates, all the Continentals in some cases siding with the Germans, over such questions as responsibility for the war and the treatment of war prisoners. The four main resolutions passed, all of which were opposed by the Americans, condemned the Allied blockade of Russia and Germany, calling on all national federations of trade unions to take early action to secure its removal; delegated to the new bureau as its first duty the investigation of the status of the Russian trade-union movement so that it might be extended aid; declared that labor organizations would take part in the proposed International Labor Conference at Washington only if representatives of enemy countries were included; and criticized the structure of the proposed League of Nations, calling the international labor provisions "distinctly insufficient." Another meeting of the trade-union international was held at Washington in late October at the time of the organization of the official International Labor Conference (see *infra*). The latter was perhaps the chief feature in the development of international labor relations during the year.

Labor in the Peace Treaty.—On Jan. 31 the Peace Conference appointed a Commission on International Labor Legislation, consisting of two representatives of each of the six principal Allied powers and one each from Cuba, Poland, and Czecho-Slovakia (see also II, *International Relations*). The members of the Commission were for the most part Government officials, Samuel Gompers, the president of the American Federation of Labor, who was elected president of the Commission, being the only strictly trade-union representative. The Commis-

sion on March 24 brought in a report in which it recommended the organization of a permanent International Labor Bureau and an annual International Labor Conference, both under official sanction. The Commission laid down nine labor standards to be brought into force through a specified plan of international action and asked that the United States call the first of the projected annual conferences.

The question of international labor standards was third in order of the subjects taken up by the full Peace Conference, and the Commission's report was adopted and included in the Peace Treaty with Germany in a slightly weakened form. Each country was to send four delegates to the annual labor conference, two of whom should represent the Government, one labor, and one capital. The relative strength of Government and other representatives was the subject of much discussion, several countries, including the United States, standing for one employers', one employees', and one Government delegate.

At the annual conferences "recommendations" as to labor legislation might be made, or the countries might enter into "conventions" to enact certain labor laws. In the latter case, any agreements were to be brought before the appropriate legislative bodies within 18 months after the conference, though no further obligation was to rest on the country if legislative assent was refused. A federal state whose form of Government did not permit action in a given matter by the central legislature might treat a convention merely as a recommendation. After a convention had been translated into law by a country, employers or workpeople might complain to the International Labor Bureau if its provisions were not observed. The complaint would first be brought to the attention of the state in question, but in case of persistent violation, after rather elaborate procedure, the League of Nations might take steps to punish the offending country.

In the original Commission report the signers of the treaty were to "declare acceptance" of nine principles of labor legislation. But the actual treaty gave these standards only as principles "of special and urgent im-

portance" and in some cases weakened their substance. Labor was declared to be "not merely a commodity or article of commerce." The "right of association for all lawful purposes" was to be granted "employed as well as employers." Wages adequate to maintain a reasonable standard of living should be paid. The eight-hour day or 48-hour week was fixed as the "standard to be aimed at." A weekly rest of at least 24 hours should be provided, including Sunday wherever practicable. Child labor was to be abolished and such limitations placed on the labor of young workers as should permit the continuance of their education and their proper physical development. Equal pay should be given for equal work, regardless of sex. The legal standards of each country "should have regard to the equitable economic treatment of all workers lawfully resident therein." Finally, an inspection force whose membership included women should be organized to enforce this labor legislation.

International Labor Conference.—

The first official International Labor Conference met at Washington, Oct. 29—Nov. 29, 1919. Forty-one countries had delegates present; German and Austrian delegates were invited but were unable to reach the United States in time. As the Senate had not ratified the Peace Treaty (see I, *Congress*), the United States was not officially represented, though the Conference elected Secretary of Labor Wilson chairman. The Conference adopted 12 draft conventions and recommendations on labor legislation to be referred to its member countries for enactment. Working hours for both sexes were to be limited to eight daily and 48 weekly in mines, factories, building, and transportation. The programme of action against unemployment included national systems of free public employment bureaus, prohibition of private fee-charging agencies, establishment of unemployment insurance, reservation of public works for periods of depression, and regulation of the recruiting of bodies of workers in one country for employment in another. It was recommended that foreign workers should in general receive the benefits of protective labor

laws and of the right to organize on equal terms with natives. Maternity protection and benefits for women workers should be provided for through opportunity for rest six weeks before and after childbirth and free medical care and cash benefits during that period. An enlarged and modernized draft convention forbidding the employment of women in industry for a period of 11 hours at night which must include the interval between 10 p. m. and 5 a. m. is substituted for that agreed to by 14 countries at Berne in 1906. In connection with the prevention of occupational disease, the Conference recommended the disinfection of wool infected with anthrax, extension of the prohibition of the use of white phosphorus in manufacture of matches to all members of the Conference, and prohibition of the employment of women and young persons under 18 in certain lead processes and their employment in any work with lead only under cleanly conditions. The establishment of special Government services charged with safeguarding the health of the workers is also recommended. The minimum age for the admission of children to industrial employment is fixed at 14 years except for India and Japan, where it is 12. Industrial night work by young people under 18 is to be forbidden by members of the Conference, with certain exceptions for those between the ages 16 and 18.

International Conference of Working Women.—The Women's Trade Union League called an International Conference of Working Women which met in Washington on Oct. 28, just before the general International Labor Conference, hoping in this way to give impetus to the consideration of questions of women's work by the latter. Its first resolution asked that half the delegates at the next International Labor Conference be women. On the limitation of hours the women's Conference urged not only an eight-hour day, but a 44-hour week and a weekly rest period of at least a day and a half. Standards advocated for the employment of children were the 16-year age limit and prohibition of the employment of minors at night and in occupations injurious to their development. The special protection asked

for women included forbidding their employment in occupations that would injure their capacity for motherhood and prohibition of home work on poisonous materials. The prohibition of night work by women and its limitation in the case of men to continuous processes in public service were also demanded. The Conference elected temporary officials and postponed permanent organization until its next meeting at the time of the second International Labor Conference.

Industrial Commission to Europe.

—Under the auspices of the Department of Labor, an Industrial Commission of seven employers sailed in January to observe labor conditions abroad, especially in Great Britain. On their return in May the Commission stated that English employers generally recognized the right to organize and the desirability of bargaining collectively with trade unions. In spite of the unrest they believed that a considerable spirit of coöperation to increase production was to be found between employers, the Government, and the more conservative portion of the employees, who were apparently in the majority.

Pan-American Labor Congress.

—The second annual session of the Pan-American Federation of Labor was held in New York, closing July 11. Resolutions were passed endorsing the League of Nations with the proviso that all nations should be admitted, tendering the good offices of the Federation in settling the long standing boundary dispute between Chile and Peru, and urging that any differences between Mexico and the United States be settled by peaceful methods. Fear had been expressed that the Federation would be disrupted because of a resolution passed at the 1919 convention of the American Federation of Labor asking for two years' prohibition of immigration from Europe and Mexico; but the Central and South American delegates were satisfied with the explanation from the president of the American Federation that prior to the war immigration had so increased that it menaced American standards of living and that personally he would favor the admission of any person holding a trade-union membership card.

LABOR ORGANIZATIONS

American Federation of Labor.—

The chief body of organized workers in the United States, the American Federation of Labor, showed considerable gains in membership at its 39th annual convention, held in Atlantic City, June 9-23, 1919. A membership of 3,260,068 was reported, an increase of 19 per cent. during the year. The Federation was composed of 111 national and international trade unions, made up of 33,852 local unions. There were also 46 state federations of labor and 816 city central bodies. Directly affiliated were 884 local and "federal" labor unions of mixed composition. Five "departments," building trades, metal trades, railway employees, mining, and union-label trades, had 572 local councils.

Out of 101 unions reporting, 66 reported gains in membership totaling 826,449, of which the largest gainers were the machinists (155,000), maintenance-of-way employees (136,713), and railway carmen (103,939). Other unions reporting membership gains of 1,000 or over included:

Bakers	1,399
Blacksmiths	10,000
Boiler Makers	71,677
Bookbinders	2,295
Boot and Shoe Workers	1,972
Bridge and Structural Iron Workers	3,863
Carpenters	35,113
Draftsmen	2,900
Electrical Workers	51,000
Marine Engineers	4,026
Federal Employees	20,000
Fire Fighters	13,000
Stationary Firemen	7,000
Foundry Employees	3,200
Iron and Steel Workers	8,000
Leather Workers	3,000
Letter Carriers	2,000
Longshoremen	4,000
Meat Cutters	31,000
Sheet Metal Workers	2,500
Mine, Mill, and Smelter Workers	3,356
Moulders	1,944
Oil Field Workers	15,000
Painters	3,797
Plumbers	17,083
Postal Employees	6,000
Printing Pressmen	4,462
Pulp and Sulphite Workers	1,000
Railway Employees, Street	13,000
Seamen	10,230
Switchmen	1,826
Teachers	4,200
Teamsters	2,711
Telegraphers, Railroad	25,000
Telegraphers, Commercial	2,000
Textile Workers	17,208
Timber Workers	5,250
Typographical Union	2,258

At the convention the Federation voted to continue its organizing campaign among the steel workers and to carry on intensive organizing work among negro workmen. In 1919 also the four railroad brotherhoods (engineers, firemen, conductors, and trainmen), which had long remained independent, applied for charters in the Federation. The spread of organization was further indicated by gains in unionizing actors, librarians, and teachers. The teachers' organization reported that it had made the greatest progress in its existence during 1919, increasing from 34 to 90 locals. (see also XXX, *Education*). Three of these were at normal schools and three at colleges—Howard University, the College of the City of New York, and the University of Illinois. Grave questions of public policy were raised by the further development of union organization among city firemen and policemen, the latter having 33 locals in as many cities (see also *Strikes and Lockouts, infra*; I, *American History*; and VI, *Municipal Government*).

Of the two so-called factions in the Federation of Labor, radicals and conservatives, the latter on the whole remained in control, as is illustrated by the defeat of such resolutions as those providing for a change of Labor Day to May 1, for a general strike until Mooney (see *infra*) was freed, and for the reorganization of the Federation on an industrial instead of a craft basis.

The convention went on record in favor of Government ownership of the railroads and coöperation with the railway unions in securing it. The latter favored the so-called "Plumb plan" of railroad management, which involved Government ownership with operation by a board representing equally officials, employees, and the public (see *infra*). The Federation opposed war-time prohibition and urged that the brewing of 2.75 per cent. beer should be permitted under the prohibition amendment. "The usurpation by the courts of the right to declare laws unconstitutional" should be ended by appropriate legislation, it was declared. No definite recommendations were made on health insurance, and the Executive Council

was authorized to continue its investigations of the subject. Other resolutions favored the withdrawal of troops from Russia and the repeal of all war-time laws abridging the rights of free speech, free press, and free assemblage. After considerable discussion the League of Nations and the labor clauses of the Peace Treaty were endorsed by a large majority, with the amendment that the people of Ireland must not be denied the right of self-determination.

On more purely labor matters, members were promised support in short-hour demands as far as they thought it advisable to go. It was stated that the 44-hour week would become universal in the near future and that a six-hour day would soon become necessary in certain trades to prevent unemployment. Plans for "company unions" were strongly condemned. An adequate minimum-wage and a retirement system for Federal employees was advocated. Two fraternal delegates from England, one from Canada, and one from Japan were among the persons addressing the convention.

Women's Trade Union League.—At the seventh biennial convention of the Women's Trade Union League, held in Philadelphia, June 2-7, 125 delegates representing 31 different occupations were present, in addition to a number of fraternal delegates. The speeches of three Englishwomen, from the National Federation of Women Workers, the general trade-union movement, and the coöperators; gave a note of internationalism to the proceedings. A commission of women workers sent by the League to the Peace Conference advised the calling of an International Conference of Working Women just before the general International Labor Conference (see *International Relations*, *supra*). Other important resolutions favored the 44-hour week, formation of an international league of workers, compulsory health insurance, standardization of domestic service, the organization of domestic workers, and an official study of seasonal occupations.

Industrial Workers of the World.—Owing perhaps to the fact that many of their leaders had been imprisoned during the previous year or two, com-

paratively little was heard from the I. W. W. in 1919 (see also I, *American History*). On Jan. 16, 46 members of the organization were found guilty of a violation of the Espionage Act by a jury in Sacramento, Cal. Of these 43 had conducted what was termed a "silent defense," declining to plead, to employ counsel, or to give evidence. On June 7 the indictments against 52 I. W. W.'s were quashed by the Federal court at Wichita, Kan., and on the following day they were reindicted on conspiracy charges. They had been arrested early in 1918, mostly in the Kansas and Oklahoma oil fields. Several I. W. W.'s convicted at Chicago during the year were released from prison on bail while their cases were appealed to higher courts. On July 7 delegates from a number of labor organizations in the northwestern states and Canada met in Butte, Mont., to consider plans for superseding the American Federation of Labor by "one big union," a scheme generally connected with I. W. W. influences.

Three war veterans were killed and four wounded in a shooting affray during an Armistice Day parade in Centralia, Wash. It was charged that the shots came from the roof of the I. W. W. hall, and the place was immediately raided and a number of persons arrested. The local I. W. W. secretary was lynched during the night. During the next few days numerous arrests of members of the organization were made throughout Oregon and Washington. A coroner's jury, however, refused to ascribe the shooting to members of the I. W. W.

Labor Cases.—The year's developments in the Mooney case, which came to a climax in 1918 with the commutation of Mooney's sentence from death to life imprisonment (*A. Y. B.*, 1917, p. 424; 1918, p. 459), included the calling of a "National Labor Congress" to consider appropriate action by the "International Workers' Defense League" in Chicago in January. The Congress proposed to ask for Federal intervention, for a California law providing for new trials in cases of perjured testimony, and as a last resort, if Mooney was not previously released, for a general strike on July 4. Conservative unions declined to par-

ticipate, however, and the strike apparently did not take place. On March 4 all the remaining indictments against E. D. Nolan, one of the defendants in the case, were quashed and Mrs. Mooney's bail was greatly reduced. On July 23, in response to a resolution, the results of the Department of Labor's investigation of the case were laid before the House of Representatives. The report of the Federal investigators condemned the methods used in the trial to secure conviction and ascribed them to undue corporate influence.

On July 9 and 10, 107 prominent citizens of Bisbee, Ariz., were arrested by the county officials, charged with kidnapping and assault in connection with the deportations of 1917 (*A. Y. B.*, 1917, p. 419). In the case of the Federal indictments for the same offense, which had been quashed on Dec. 3, 1918 (*A. Y. B.*, 1918, p. 459), an appeal to the U. S. Supreme Court was pending. Civil suits for damages aggregating \$6,150,000 were also filed by the men who had been deported against the mining companies and railroads involved. They were settled out of court on the basis of \$500 for each single man, \$1,000 for each married man, and \$1,500 for each married man with children.

On Nov. 22 three labor leaders were killed and a fourth fatally wounded by members of a so-called "Loyal Legion" at Bogalusa, La. Bad feeling between the business interests and labor men of the town had been created through a lockout by a large lumber company when its employees refused to give up their union affiliations. The evening before the shooting 500 armed men stopped a train outside the town and searched it for labor men. Failing to find any, they searched for a negro who had been active in organization work but were unsuccessful. The next morning the negro walked down the town's principal street accompanied by two white representative of labor. The attack by members of the "Loyal Legion" followed. Thirteen of the alleged assailants were arrested on Dec. 7 but were immediately released on bail.

Labor Education Movements.—The opening of evening classes for trade unionists and their families in Boston

in the spring of 1919, under the name of the "Boston Trade Union College," represented an interesting development in the provision of education for adult workers. A number of the teachers were college professors of high reputation, and the courses included English, science, law, and a variety of classes in social science. The experiment was continued on a large scale in the fall of 1919, and a similar institution was opened in Seattle at that time. Classes of perhaps a somewhat less advanced character had been conducted for several years by the International Ladies' Garment Workers in New York and Philadelphia and the Women's Trade Union League in Chicago, and classes started by trade unionists in Los Angeles had been taken over by the Board of Education. (See also XXX, *Education*.)

Labor Party.—The movement for the foundation of local labor parties by local federations of labor, noticeable in 1918 (*A. Y. B.*, 1918, p. 459), continued during the year. In January the "Labor Party of Greater New York" was organized; in April a similar body was formed for the state of Illinois, following similar action in Chicago; and in July the "Working People's Non-Partisan Political League of Minnesota" planned coöperation with the farmers' Non-Partisan League. The Pennsylvania Federation of Labor also decided to organize a labor party. The platform of these parties included comprehensive labor legislation demands such as a universal minimum wage, social insurance, and the legal eight-hour day; and the advocacy of such government policies as public ownership of public utilities, the initiative and referendum, and the withdrawal of troops from Russia, release of political prisoners, repeal of the Espionage Act, and similar planks in connection with war activities. At the 1919 convention of the American Federation of Labor, the principal officials of which had long opposed the creation of a separate labor party, it was declared that although it was outside the powers of state federations or city centrals to form a national labor party, they had the right locally to engage in whatever political activity they wished. Nevertheless, in August delegates from labor-party groups in

XV. LABOR AND LABOR LEGISLATION

the seven states of Connecticut, Illinois, Kansas, Minnesota, New York, Ohio, and South Dakota met at a conference in Chicago and voted to hold a convention opening Nov. 22 to organize a National Labor Party. Labor parties and local unions were to send one delegate for each 500 members and city central labor unions might send one delegate each. Fraternal delegates from such organizations as the Non-Partisan League were to be invited. (See also I, *Politics and Parties*.)

The "Plumb Plan."—One of the most startling of the labor developments of the year was the issuance of a statement on Aug. 2 by the presidents of the four railroad brotherhoods and the head of the railroad employees' department of the Federation of Labor that their unions "were in no mood to brook the return of the railway lines to their former control" and that economic disaster would follow unless the so-called "Plumb plan" of railroad operation was adopted. This scheme, promulgated by Glenn E. Plumb, the general counsel for the four brotherhoods, provided for Government ownership of the roads and their management by a board representing equally employees, officials, and the public. On Aug. 3 the president of the Brotherhood of Locomotive Engineers said that the plan would be made an issue in the next Congressional election and that candidates favoring it would receive the unions' support. A similar plan for the operation of the nation's coal mines was endorsed by the United Mine Workers at their convention in September. (See also I, *American History*; and XIX, *Railroads*.)

STRIKES AND LOCKOUTS

The Strike Record.—The year 1919 witnessed a number of large and bitterly contested labor disputes, several of which turned on the question of union "recognition" and not a few of which were called by local unions in defiance of the stand of their national officials. Strikes and lockouts were given a relatively large amount of publicity during the year. They seemed to be especially numerous in

the first two or three months of the year and in the late summer and autumn, beginning with August. Statistics collected by the U. S. Bureau of Labor Statistics for the first three months of 1919 however, show only 608 strikes and lockouts in contrast to 771 in the same period in 1918. The greatest number of disputes in this period occurred in the metal trades, with clothing, the building trades, and the textile industry following in the order named.

New York Harbor Strikes.—The first of three harbor strikes which stopped the usual activities of the port of New York began on Jan. 9, involving practically all of the 16,000 men employed on harbor craft and forcing the port's 50,000 longshoremen into idleness. The harbor workers, whose various unions were coöperating as the "Marine Workers' Affiliation," had appealed to the War Labor Board for an eight-hour day and increased pay in Nov., 1918. The strike took place when the Board announced that it could not proceed on account of the refusal of the employers, who claimed that the Board was unduly favorable to the employees, to submit their case to it. But at the request of President Wilson, the various Government agencies concerned and one private employer acknowledged the jurisdiction of the Board, and the men returned to work on Jan. 13 pending its decision. The Board was unable to agree on a settlement and turned the case over to a single arbitrator, V. Everit Macy, whose decision reaffirmed the 1918 award (*A. Y. B.*, 1918, p. 464) and stated that the eight-hour day was "desirable," but he did not prescribe it. On March 4 the men struck again in protest against the decision. On March 7 the Railroad Administration practically conceded the strikers' demands, and the 5,000 men employed on railroad boats returned to work. By the end of the month the other Government agencies employing marine workers had also settled with them on similar terms. The strike against the private boat owners was ended on April 19, on the basis of a 10-hour day and consideration of wage demands by a joint committee. The latter reached an agreement on June 17 which was to run to the end of the

XV. LABOR AND LABOR LEGISLATION

year and which provided a wage increase averaging \$15 a month.

On Oct. 7 another strike by the harbor workers on railroad boats began. The men claimed that they had never really agreed to the March settlement of their dispute, but had been constantly protesting against it, and that answers to their complaints were delayed. A strike of the workers on private boats was averted by a promise that they would not be asked to handle railroad business. On the following day the longshoremen of the port struck, in opposition to the wishes of their national officials, as a protest against a decision of the National Adjustment Board raising their wages from 65 to 70 cents an hour instead of the dollar an hour demanded. Of the striking harbor workers, the ferry-boat employees accepted a compromise offer of a nine per cent. increase in wages and a six-day week and went back to work on Oct. 15. Meanwhile, the transportation of freight in the city was further hindered by a strike of express drivers, beginning Oct. 13, for the purpose of forcing prompt action by the Railroad Wage Adjustment Board on their demand for an increase in wages of \$25 a month. The men voted to go back to work on Oct. 22, following a statement by the Director-General of Railroads that a decision on their wage demands would be handed down on Nov. 4 and that troops would be used, if necessary, to protect those willing to return to work. Most of the longshoremen continued on strike until Nov. 5, when they returned to work on the assurance of the Mayor that their case would be reopened at once. On Nov. 21 the Adjustment Board granted them 80 cents an hour. The Mayor and a special commission appointed by the Secretary of Labor had previously made several ineffectual efforts at conciliation. Certain of the longshoremen's local unions which supported the national officials had voted to end the strike, but only a few had actually gone to work, and the insurgents had persisted in their demands. (See also I, *American History*.)

Textile Industry.—A movement for the eight-hour day in the textile centers of the New England and the middle states culminated in threats of

a strike on Feb. 3. The movement centered in Paterson and Passaic, N. J., Cohoes and other towns near Albany, N. Y., and the mill towns of eastern Massachusetts. The Paterson silk-mill operatives at first attempted to force an eight-hour day by coming at 7:30 and 8 instead of 7 a. m. on the morning of Feb. 3 but found themselves locked out. They resumed work on Feb. 16, pending a decision on their case by the War Labor Board, which later prescribed a 48-hour week up to Oct. 10. This was accepted by numbers of the United Textile Workers, who were affiliated with the American Federation of Labor, but rejected by independent organizations, and on Aug. 5 about half of the city's 28,000 silk workers struck for an immediate 44-hour week. This was conceded them after a three weeks' stoppage of work.

A similar strike of 13,000 woolen-mill employees in Paterson lasted from Feb. 3 until March 21. The strikers demanded a 44-hour week, the closed shop, and a 35 per cent. increase in wages, and gained the 48-hour week, the "right to organize," and recognition of the union, the question of wages being left to an arbitration committee. In the Cohoes shoddy mills, the 48-hour week, but with only 48 hours' pay, was granted late in March, and the knitting mills settled on a similar basis in May.

Perhaps the stubbornest of this group of strikes was contested in Lawrence, Mass. On Jan. 29, after demands for an eight-hour day had been made, the American Woolen Co. announced that it would work a 48-hour week with 48 hours' pay and time and a half for overtime. This offer was accepted in Lowell, Fall River, and New Bedford, but in Lawrence about half the 35,000 mill operatives demanded 54 hours' pay for the shortened week. Their strike was carried on without the approval of the city's Central Labor Union and was directed at first by three clergymen and later, in part, by the Amalgamated Clothing Workers. The police refused permits for parades and outdoor meetings, and considerable disorder occurred throughout the strike. On Feb. 7 a striker was killed in a riot, and on May 6 two members of the strike com-

mittee claimed that they had been dragged from their hotel by a gang of twenty masked men and severely beaten. Conferences between American Woolen Co. officials and committees of strikers on March 24 produced no results. On the same day considerable attention was attracted by a prominent Boston woman, a small stockholder in one of the mills, who led several thousand strikers on the picket line. During the first week in April the employers rejected the strikers' proposal that the chairman of the state's war-time Public Safety Committee arbitrate the dispute, and the Harvard Liberal Club of Boston formed a committee to attempt mediation. On April 28 the State Board of Mediation offered its services on condition that the strikers go back to work pending its decision, but such action was not taken. In the latter part of May the mill owners announced a 15 per cent. wage increase, and conferences were arranged between representatives of the Amalgamated Clothing Workers and the Woolen Co., and later between committees of the strikers and the mill agents. It was agreed that the strikers should be taken back without discrimination, and on this assurance the strike was called off and the strikers returned to work on May 22. On April 12 and 13 their representatives, together with delegates from the independent organizations that had managed the strike in Passaic and Paterson, met in New York and with the advice of the Amalgamated Clothing Workers, who pledged financial help, founded the "Amalgamated Textile Workers of America."

Clothing Trades.—Through several large strikes and some peaceful agreements the 44-hour week became general in the clothing industry in 1919. With this as the principal issue in dispute, 10,000 boys'-clothing workers went on strike on Oct. 28, 1918. On Nov. 9 the employers locked out the cutters of men's clothing, thus rendering an additional 30,000 workers idle. After several fruitless attempts at settlement by individuals, a special board of three secured an agreement on Jan. 27. The board recommended that the shortened week be established throughout the coun-

try; that a skilled investigator be employed to get facts on wage rates and the cost of living for wage adjustments; that principles and machinery to improve efficiency, discipline, and production be established; and that both parties agree on an adviser to settle disputes. The 44-hour week was almost immediately granted in Rochester, N. Y., and to the 20,000 employees of Hart, Schaffner & Marx in Chicago.

New York dress and waist makers struck on Jan. 26. Their demands included the short work week and a 15 per cent. increase in wages, but the chief bone of contention was the "right to discharge," which the manufacturers wanted made absolute. Employees desired the continuance of the board for reviewing discharges. Independent manufacturers employing 15,000 out of the 35,000 strikers yielded to their demands within a few days, but the manufacturers' association continued the struggle for 11 weeks. An agreement was then made for retaining the board to review discharges and for hastening its decisions, and the 44-hour week was granted. The next New York clothing strike involved the ladies' cloak and suit makers, who ceased work on May 14, demanding, besides a 44-hour week, a guarantee of employment for 48 weeks a year and increased wages on a time, instead of a piecework, basis. An agreement signed on May 29 gave them the shortened hours and time work at rates varying from \$18 a week for finishers to \$39 for cutters and \$44 for operators. No guarantee of employment was given, but overtime was not permitted in the dull season, this tending to distribute work somewhat more evenly. A few weeks previous, after nine years of effort, the Amalgamated Garment Workers had for the first time secured a trade agreement with the Chicago manufacturers' association. This agreement, covering 30,000 workers, established a preferential union shop, extra pay for overtime, and trade and arbitration boards for the settlement of grievances, as well as the 44-hour week.

Street Railways.—In 1919 street-car service was suspended for several days on account of strikes in many of the larger cities of the country. In

some instances the disputes were complicated by the fact that city governments were unwilling to allow the raising of existing fares which the railway companies claimed made it impossible to pay the higher wages demanded (see also X, *Public Services*). Trainmen on the trolley lines serving northern New Jersey went on strike on March 11, their chief demands being for recognition of their union and an eight-hour day with the same pay as for 10 hours. On March 18 they resumed work pending the War Labor Board's decision, which allowed them to post union notices in the car barns and compromised the hours question. Strikes in Denver beginning June 9, in Cleveland on July 6 and 7, and in Detroit beginning July 8 were complicated by differences between the city authorities and the companies, as outlined above. In each case the men were granted wage increases, and a compromise on franchise terms was reached.

Employees of the Boston Elevated and street-car company were on strike from July 17 to 21 in protest against delay by the War Labor Board in settling their grievances. The strike was finally arbitrated by a local committee of three persons. The men, who had been getting 48 cents an hour, asked for 73½ cents; they were granted 62 cents, an eight-hour day, and other terms said to embody the best working conditions ever given carmen in the United States.

A serious situation created by race riots in Chicago was further complicated by a strike tying up the city's street-car service. The strike was declared on July 29 at a mass meeting in which an appeal of the international president of the union for a referendum vote on a compromise offer was howled down. According to this official, the strike was illegal. A referendum was held on Aug. 1, however, and the compromise proposals were adopted by a small majority. The men had asked for 85 cents an hour, an eight-hour day, and a six-day week. They received 48 to 67 cents (an increase of 17 cents), a 50 per cent. increase in pay for all overtime over eight hours, and the guarantee of an eight-hour day on 60 per cent. of the runs.

Brooklyn's transit service was paralyzed by a strike on Aug. 7, in which the chief issues were the recognition of the union and the reinstatement of employees discharged for union activity. The strikers' demands also included a wage increase and the eight-hour day. Attempts to run cars resulted in rioting and violence, and it was claimed that the strikers stopped the cars and beat the non-striking trainmen. On Aug. 9 the strike was ended by a compromise, in which the head of the Brooklyn Rapid Transit Company agreed to negotiate with union representatives if more than half the eligible employees belonged to the union. This was proved to be the case. Any grievances that could not be adjusted in this way, it was agreed, were to be settled by a representative arbitration board of three members.

The "Interboro' Brotherhood," the "company union" of the Interborough Rapid Transit Company of New York, struck on Aug. 17, their principal demand being for a 50 per cent. wage increase. They returned to work the next day after having been granted a 25 per cent. increase. No attempts to run trains were made during the strike, and city officials charged that the union and Interborough officials had conspired to obtain the wage increase in order to have an excuse for raising fares. The matter was under investigation by a grand jury during the closing months of the year.

General Strike in Seattle.—A general strike was carried on in Seattle from Feb. 6 to Feb. 11 in support of shipyard workers who had been striking since Jan. 21 for a raise in pay. Announcement on Jan. 2 of the plans for a general strike caused a panic among many persons who feared that it was an attempt at revolution. As proof was quoted an editorial in the labor daily, saying, "We are starting on a road that leads no one knows whither." Many citizens not members of labor unions bought firearms and stocks of fuel and provisions, the governor was called on for protection, and troops with machine guns entered the city. It was estimated that 70,000 persons stopped work on the opening day of the strike, and except

for certain essential employees who were given permission to work by the strike committee, the economic life of the city was almost completely suspended. Factories and restaurants were closed, the street cars did not run, the newspapers did not appear. Typical "exemptions" were those given to city firemen, to garbage collectors, to drugclerks to fill prescriptions, and to a laundry to do hospital work. The city lighting and telephone systems remained in operation. The strikers opened milk stations to provide milk for babies and certain restaurants. Ex-soldiers were organized as "labor's war veteran guards" for the alleged purpose of keeping order. Some of the municipal street cars began to run on Feb. 7, and from that time there was a gradual return to work. Comparatively few remained idle when the strike was called off at noon on Feb. 11. The shipyard strike failed and the men resumed work on Feb. 19 at their old rates of pay.

Railroad Shopmen.—On Aug. 2, contrary to the instructions of their national officials, a strike of railroad shopmen was called to obtain an increase of 17 cents an hour over their wage of 68 cents. The shopmen's demands had first been presented to the official Wage Adjustment Board in February. The Board was unable to come to a decision, but following a conference with the Director-General of Railroads on July 28, the men claimed that they expected an award. Instead, on July 30 the Director-General asked Congress to create a new wage board on which the public should be represented as well as employees and officials. He stated that if the shopmen's demands were granted, a new cycle of wage increases to all railroad employees would be necessary. The strike began in Chicago but extended to New York and Boston about Aug. 8. It proved necessary to declare freight embargoes, to cancel many trains, and to curtail Pullman and dining-car accommodations. On Aug. 14 the strike was declared off, and most of the men returned to work. On Aug. 26, President Wilson, in a special letter to the shopmen, asked a halt on all wage increases until normal conditions re-

turned, saying that any further increases would hinder the Government's campaign to reduce the cost of living. He did approve an increase of four cents an hour for the shopmen, which seemed necessary to put them on the same basis as other railroad workers, and urged them to take another strike vote. The officials of the shopmen's union also asked that the power to call a strike be left in their hands and stated that action at the time would obstruct the Government's efforts to reduce living costs. They pointed out that other railroad workers were also asking for increases. The shopmen voted to defer their strike for three months to test the efficacy of the Government's plans to secure lower prices and living costs. (See also I, *American History*.)

Boston Police Strike.—The first strike of policemen in the United States took place in Boston, beginning Sept. 9. It followed the suspension of 19 officers and men for activity in organizing a union affiliated with the American Federation of Labor in defiance of an order of the police commissioner that members of the force should not affiliate with outside organizations. Other grievances of the men included overwork, underpay, and insanitary conditions in the station houses. Out of 1,544 policemen 1,400 to 1,500 are said to have gone on strike. Rioting, looting of store windows, and burglary immediately followed and continued in some sections of the city for two days until subdued by the National Guard. On Sept. 11 President Wilson characterized a police strike as a crime against civilization and compared the obligation of the policeman to that of the soldier. On Sept. 12 the president of the American Federation of Labor wrote to the governor of Massachusetts suggesting that the policemen be taken back and the matter of the unionization be left open, as was being done in the city of Washington, until after the matter was passed on by the pending Industrial Conference (see *Mediation and Conciliation*, *infra*). The governor replied that the cases were not similar because the Washington police had not struck. The following day the strikers offered to return to duty, but the police commissioner announced

that their places were vacant and that he would proceed to fill them. Threats of a general sympathetic strike were not carried out, and on Sept. 19 plans of the strikers for taking legal action to get their positions back were abandoned. In October the Chamber of Commerce was reported to have formed a committee to help the strikers to find positions in private employment. (See also I, *American History*; and VI, *Municipal Government*.)

Actors' Strike.—Another unique strike during the year was that of actors in New York and a few other large cities. Certain actors had formed in 1913 the Actors' Equity Association, which in 1917 was recognized by the managers as the representative of the actors. Its contract embodying approved working conditions was generally accepted, and provision was made for arbitrating all disputes. In May the managers asked for certain changes in the contract, objecting especially to paying for all performances in excess of eight weekly. While negotiations were going on, the managers issued a public statement to the effect that the Equity Association would not be recognized in future. The demand of the Association that the dispute be arbitrated was refused. The Equity Association then affiliated with the American Federation of Labor, and actors in 12 New York productions went on strike on Aug. 7, stage-hands and musicians going out in sympathy. The managers stated that the actors had broken their agreements and wanted the "closed shop"; the actors denied these charges and claimed that the managers had refused to arbitrate or to recognize the "Equity," as their contracts required. The situation was complicated by the formation of a rival to the "Equity," the "Actors' Fidelity League," called by the strikers a creation of the managers. The strike gradually extended to nearly every New York theatre and to Boston and Chicago. After negotiations for a settlement had failed, a national strike was called, but on the same day, Sept. 6, the managers signed an agreement embodying practically all the demands of the union. (See also XXVIII, *The Drama*.)

Steel Strike.—A nation-wide strike in the steel industry, turning chiefly on the issue of bargaining collectively with trade unions, began on Sept. 22. It was generally accepted as a test of strength between organized labor and the largest industry in America that dealt with its workers individually. For some months the unions concerned had been carrying on an active organizing campaign among the steel workers (*A. Y. B.*, 1918, p. 458). On Aug. 20 the unions stated that they would take a strike vote unless the president of the U. S. Steel Corporation held a conference with union representatives on their demands. This was not done, and the vote was said to be overwhelmingly in favor of a strike. On Sept. 16, in a letter to the heads of subsidiary corporations, the president of the Steel Corporation stated that he did not combat labor unions "as such," but that he would not deal with the union officials, because they were not authorized to speak for large numbers of employees, and because they would treat a conference as recognition of the "closed-shop method." He regarded the principle of the "open shop" as vital to American industry. A request by President Wilson that the strike be postponed until after the Industrial Conference (see *Mediation and Conciliation*, *infra*) was refused by strike leaders on the ground that they could not hold the men at work. The 12 demands of the strikers included the right of collective bargaining, reinstatement of men discharged for union activity, an eight-hour day, one day's rest in seven, abolition of the 24-hour shift, wages sufficient "to guarantee American standard of living," standard wage scales and classification of employees, double pay for overtime, collection of union dues by the check-off system, use of the principle of seniority in hiring and discharging men, abolition of company unions and of physical examinations. Widely conflicting claims were made by employers and unions as to the number going on strike and the number returning to work from day to day, but the strike gradually disintegrated and was finally called off in late December. The Senate began an investigation on Sept. 24, hearing labor leaders and

employers. Several hearings were held in Pittsburgh, at which the strikers complained of denial of their constitutional rights of free speech and free assemblage. Riots at Farrell, Pa., on Sept. 23 caused the deaths of two men and the wounding of several others. On Oct. 7 the town of Gary, Ind., was put under control of Federal troops because the strikers paraded and held meetings after such action had been forbidden by the mayor. A number of radicals were arrested in Gary for alleged unlawful activities, and it was stated that they would be deported. (See also I, *American History*.)

Coal Strike.—Production was practically suspended in the nation's soft-coal industry from Nov. 1 to Dec. 11 by a strike of the 425,000 union miners. The miners, who were working under an agreement which was to run until March 31, 1920, or "the end of the war," at their convention in September instructed their leaders to demand a 30-hour week and a 60 per cent. wage increase and to call a strike if these demands were not granted by Nov. 1. It was later claimed that the 30-hour week was sought as a minimum, actual working time averaging less than this. A conference between miners and operators failed to come to an agreement, and the strike was ordered. On Oct. 25 President Wilson asked that the strike be given up, saying that the attempt "must be considered a grave moral and legal wrong against the Government and people." He offered to appoint an investigation tribunal to settle the issue, but his offer was not accepted. As the date for the strike approached, the war-time control of coal by the Fuel Administration was renewed, a priorities list established, and maximum prices fixed. On Oct. 31 a Federal judge at Indianapolis issued a temporary injunction under the war-time Food and Fuel Control Act, which forbade conspiracies to interfere with the fuel supply, restraining officers of the mine-workers' union from prosecuting the strike or dispensing strike benefits. The injunction was made permanent on Nov. 8, and union officials were given 72 hours to cancel the strike order, which they did on Nov.

11. Few, if any, of the strikers returned to work, however. On Nov. 14 a conference of operators and miners to fix a new wage scale opened in Washington. The Secretary of Labor offered the men an increase of 31.6 per cent., but the offer was rejected by the mine owners. A proposal for a 14 per cent. advance by the Fuel Administrator was, in turn, accepted by the operators and refused by the men, and the conference broke up without agreement. On Dec. 3 the judge who had issued the strike injunction ordered the arrest of union officials for contempt of court, but this order was not carried out because at a conference of district representatives of the miners on Dec. 10 it was voted to accept a plan of settlement proposed by President Wilson. Under the President's plan the miners returned to work with a 14 per cent. wage increase, and a representative commission of three members was to be appointed to work out within 60 days the basis for a new wage agreement. (See also I, *American History*.)

Miscellaneous.—In the first week in May lockouts over the question of whether the men should work 44 or 48 hours weekly occurred in two large automobile plants in Toledo employing 16,000 men. The plants were opened under guard after being closed three weeks, an injunction was issued which limited picketing, and in the autumn it was reported that nearly the full force were at work. On the ground that the strike caused the company to sustain losses instead of profits, one of the companies involved suspended its profit-sharing plan. At the Corn Products Co. plant at Argo, Ill., serious riots in which two men were killed occurred during the course of an eight weeks' strike for the right of collective bargaining. A nationwide strike of commercial telegraphers, called on June 11 to secure union recognition, was unsuccessful, and the men returned to work on July 2. Telephone service was practically suspended in New England by a strike from April 15 to 20. The strikers gained their demands for an increase in pay and the retention of the principle of collective bargaining. Other telephone strikes in which compromise

settlements were reached took place in Ohio, Indiana, and California in June and July. A long strike of 20,000 New York cigar makers for improved wages, hours, and sanitary shop conditions began in July and was not ended until late in October. A so-called "insurgent" movement among Illinois coal miners, with strikes not authorized by the national union officials, resulted in the suspension from the national organization of 24 large local unions. The failure of industrial councils, profit sharing, and company unions, respectively, to prevent strikes was registered in walkouts at the Harvester Co. and the Crane Co. in Chicago and at a large pipe factory on Long Island. In each case the recognition of trade-union organization among the men was an issue. Labor organization and strikes occurred among newspaper writers in Boston, Rochester, and New Haven. The Boston newspapermen won a substantial increase in wages, and in New Haven the strikers started a co-operative newspaper.

On Oct. 1 the employing printers of New York City locked out 10,000 pressmen, members of four local unions which had been expelled from the national organization. The pressmen demanded a weekly wage increase of \$14 and an immediate 44-hour week, whereas the national union had agreed that these hours should go into effect on Oct. 1, 1921. The typesetters were bound by contracts not to go on strike at the time, but they aided the pressmen by taking "vacations," almost completely paralyzing the book-and magazine-printing industry of the city. Under pressure from their international officers the compositors voted to return to work on Nov. 23, leaving matters in dispute to arbitration. On Nov. 25 the pressmen agreed to reaffiliate with their national union, thus ending the strike, though one at least of the officials of the seceding locals attempted to continue his separate organization.

MEDIATION AND CONCILIATION

Efficacy of Mediation.—Industrial disputes seem to have been settled entirely by peaceful methods of arbitra-

tion or mediation (without recourse to strikes) in comparatively few instances during the year. In several cases, indeed, awards of adjustment boards were the signal for strikes of protest against the decisions (see *Strikes and Lockouts, supra*). The fate of the President's proposal for a strike truce while the Government attempted to reduce the cost of living has already been discussed (see *ibid*). A similar recommendation was made by the High Cost of Living Committee of the New York State Federation of Labor, but it was repudiated by the president of the Federation, who said that labor must not give up its right to strike unless employers made equally vital concessions. For the six months' period ending June 15, 1919, the conciliators of the U. S. Department of Labor handled a total of 607 cases of actual or threatened disputes. A slight change was then made in the method of computing the figures, and 94 cases were reported handled in the month of July.

End of the War Labor Board.—The National War Labor Board, which was perhaps the most important of the various war-time agencies for settling industrial disputes (*A. Y. B.*, 1918, p. 453), ceased to receive applications or to hear new cases on June 25, preparatory to winding up its affairs. It recommended that its administrative duties, records, and files be transferred to the Labor Department. In 13 months' activity the Board had received 1,270 cases, referred about 60 per cent. to other agencies, and handed down 462 decisions.

New Plans for Industrial Peace.—An important agreement in the building trades, for the purpose of ending the numerous jurisdictional disputes between unions as to which one should do a given piece of work, resulted in the formation of a National Board for Jurisdictional Awards in the Building Industry, composed of eight members serving two-year terms. Three members are to be selected by the building-trades department of the American Federation of Labor, and one each by the American Institute of Architects, the Engineering Council, and each of three building-trades' employers' associations. During a dispute work is to be continued with whatever men

XV. LABOR AND LABOR LEGISLATION

the employer may select. Local unions not obeying decisions of the Board are to be suspended and the job manned by the nationals concerned, and architects and builders not observing the awards are also to be suspended from their associations. In case of failure of the Board to reach a settlement, the decision of an umpire, selected either by the Board or by the Secretary of Labor, is to be final. Architects are to write the awards into their specifications, and it is hoped that a code will gradually be built up to cover all the main causes of jurisdictional disputes.

The first nation-wide joint industrial council in the United States was the "Joint Council" of the men's clothing industry, formed in Rochester in the first week of September to govern working conditions in all the principal centers of the industry. Conditions had been chaotic in the trade since the signing of the armistice, and several strikes had occurred. In the emergency the manufacturers formed the National Industrial Federation of Clothing Manufacturers and agreed to accept a plan for determining labor conditions and settling disputes through joint boards and arbitration. They then took up the plan with the chief union in the trade, the Amalgamated Clothing Workers, and secured their cooperation in forming the joint council, which began meeting on Sept. 15 to try to fix wages and working conditions for the coming season. Provision was made for arbitration if the counsel failed to come to an agreement and for administration of any agreement reached through existing joint boards.

The President's National Industrial Conference.—In a Labor Day message President Wilson announced that at an early date he would call a conference of representatives of employers and workers to discuss methods of "bettering the whole relationship of labor and capital and putting the whole question of wages on another footing." The conference was called for Oct. 6 and included 15 representatives of the "public" nominated by the President, five persons selected by the National Industrial Conference Board, five by the Chamber of Commerce of the United States, three by

investment bankers, three by farmers' organizations, and 15 by the American Federation of Labor. Protests by the railroad brotherhoods caused the inclusion of four representatives of their organizations. The programme for the Conference as outlined by the President included a canvass of methods tried to bring capital and labor into close cooperation and of "every relevant feature of the present industrial situation" in order to work out "a practicable method of association based upon a real community of interest which will redound to the welfare of all our people."

Proposals were put before the Conference by all three of the groups which composed it. The employers put forward certain "principles," chief of which were that the right of all workers to fair pay and of women to equal pay with men for equal work should be acknowledged; that collective bargaining should treat the shop as the unit—not requiring employers to deal with outside organizations; that all "associations" should assume full responsibility for their actions; and that the right to strike did not include the right to tie up essential public services or to force bargains with the Government. Labor proposals included the right of collective bargaining through trade unions, the eight-hour day, the creation in each industry of national conference boards representing employers and employees, and the restriction of immigration. The principal proposal of the "public's" representatives was for representative industrial boards in the different industries, with a general board appointed by the President to take up matters not otherwise covered.

One of the first acts of the Conference was to create a representative committee of 15 to study the various proposals made and to organize its work. This committee recommended that it give consideration to collective bargaining, mediation, conciliation, and arbitration, and freedom of contract and that three representative committees of three members each should consider, respectively, unemployment; unemployment insurance and immigration; hours and wages of women and child workers, production, and industrial and vocational training.

XV. LABOR AND LABOR LEGISLATION

A resolution early adopted by the Conference assured unorganized labor that its interests would not be neglected. The proposal of the labor group that the steel strike be arbitrated by a committee of the Conference was opposed by the employers. Discussion then centered on the method of collective bargaining, employers standing for the shop as the accepted unit and for freedom to refuse to deal with "outsiders," whereas the workers stood for collective bargaining through trade-union representatives. A unanimous vote by the three groups was required for the adoption of any proposal, and a resolution on collective bargaining which would permit dealings with trade unions was defeated by the adverse vote of the employers' group. A letter from President Wilson urging the conference to adjust its differences and unite on a constructive programme proved ineffective, and on Oct. 22 the labor group withdrew from the Conference. The employers' group was then asked to withdraw. The public group drafted a letter to the President, urging the right of collective bargaining with representatives of the workers' own choice, perfection of plans for the mediation of labor disputes, creation of a bureau in the Department of Labor for disseminating information on methods of improving labor conditions, general adoption of the Department's standards for women and child labor, and possible continuance of the work of the Conference through a small committee. On Oct. 24 the public group also adjourned *sine die*. Meanwhile the president of the Federation of Labor stated that he would call a conference in the near future of the heads of all affiliated unions to discuss present and impending disputes, and the railroad brotherhoods announced that they would ask for general wage increases before the roads left Government control.

On Nov. 20 the President announced the appointment of a second conference, this time of 17 men, all of whom were supposed to represent the public rather than labor or capital. Most of them were former public officials, newspaper men, or editors. The President asked them to propose meas-

ures to the end that "the workman will feel himself induced to put forth his best efforts, that the employer will have an encouraging profit, and that the public will not suffer at the hands of either." The conference began its sessions on Dec. 1 in secret and had not reported at the end of the year, except through a preliminary statement issued on Dec. 19, outlining for public criticism a tentative plan for boards of inquiry and adjustment. (See also I, *American History*.)

Miscellaneous.—In answer to an invitation of the governor of New York to prepare a programme to prevent strikes, 150 representatives of employers, employees, and the public met at Albany during the week of Sept. 15. They passed a resolution favoring the appointment by the governor of a representative board of nine to bring employers and employees together before strikes actually occurred and to report to the governor industrial conditions likely to cause disputes.

The possibility of a strike in the anthracite coal industry was averted by the signing of an agreement on Sept. 29, extending to March 31, 1920, the existing contract between miners and operators, including a supplementary arrangement of November, 1918, for the payment of bonuses.

COURT DECISIONS

Collective Bargaining.—One of the chief court decisions on labor matters of the year was the assessment by a U. S. district court of damages of \$600,000 against the United Mine Workers of America for injuries done the property of an Arkansas coal company by members of certain of their local unions during a strike in 1914 (*United Mine Workers v. Coronado Coal Co.*, April 28, 1919). The principle was affirmed that a labor union, even though unincorporated, could be held liable for the acts of its members. It was shown that during the strike, threats, destruction of property, personal violence, and murder had occurred and that local unions had paid for arms used by their members. The national organization had not tried to prevent the unlawful acts. The case was a retrial of *Dowd v. United Mine Workers* (A. Y. B.,

1917, p. 421), in which a similar verdict had been given but in which a new trial had been granted because interest had been allowed on the damages from the date of damage to the date of judgment. The reasoning in the case was not novel, but the verdict is said to be the most important one of its kind ever before American courts. An appeal to the U. S. Supreme Court is pending.

Another decision unfavorable to labor organizations was that of the New York Court of Appeals, which, in spite of previous decisions of a rather favorable tone (*A. Y. B.*, 1917, p. 421), declared a so-called secondary boycott illegal (*Auburn Draying Co. v. Wardell et al.*, 227 N. Y. 1, July 15, 1919). A teaming company in Auburn, N. Y., decided to compel its employees to join the union, and thereafter members of other unions refused to handle the products it hauled, these methods causing the loss of more than half its business. The court ruled against the boycott, stating that workmen undoubtedly had the right to combine to improve their own working conditions but that men might not use the power of a combination to compel the individual to yield something for the benefit of persons he did not employ and with whom he had no relations that the law recognizes.

Protective Labor Legislation.—The tax on products made by child labor, imposed by Congress after the first child-labor law, forbidding transportation of articles manufactured by child labor in interstate commerce, had been declared unconstitutional (*A. Y. B.*, 1917, p. 465), was set aside by the same Federal judge in whose jurisdiction the earlier test case had arisen. On May 2, a week after the law went into effect, this judge granted a permanent injunction forbidding the enforcement of the law in a Charlotte, N. C., cotton mill (*Johnston v. The Atherton Mills*, order in equity No. 222, May 2, 1919). No opinion seems to have been filed with the injunction, but newspapers report the judge to have said that the real purpose of the tax was to determine conditions of employment and that it was an invasion of the state's regulatory powers. An appeal to the U. S.

Supreme Court was pending at the end of the year and meanwhile the law was said to be enforced "except in the mill in question (see also XIII, *Public Finance*).

On the whole the courts were favorable toward the more common types of protective legislation. The U. S. Supreme Court upheld the women's eight-hour law and workmen's compensation law of Arizona. The eight-hour law was challenged as class legislation because it exempted railroad-station restaurants from the requirement that the eight-hour workday should fall within a 12-hour period. The court ruled, however, that the state had a right to correct what it deemed an evil and stop short of those cases in which the harm to the few concerned was thought less important than the harm that would ensue to the public if the rule were made uniform (*Dominion Hotel Co. v. State of Arizona*, 249 U. S. 265, March 24, 1919). The Arizona compensation law strips the employer of all his defenses except the employee's negligence, and it permits the employee in certain hazardous occupations to choose, after the accident, whether he will accept compensation or sue for damages. By a five to four vote the court upheld the law, the majority stating that it did not punish those without fault but caused some of the consequences of dangers inherent in the occupation to be assumed by the employer, like other costs of production (*Arizona Copper Co., Ltd., v. Hammer*, U. S. Adv. Op. 1918-1919, p. 636, June 9, 1919).

The Supreme Court of North Dakota upheld the constitutionality of the state compensation law in two cases. In one the act was attacked on the ground that it indiscriminately classified all occupations as hazardous, but the Court declared that the inclusion of all employments with the exception of a limited number, notably agriculture and steam railroads, did not invalidate the law (*Amerland v. State*, Oct. 25, 1919). In the second action the Court held that the moneys collected from employers as compensation insurance by the Compensation Bureau constituted a special fund to be disbursed at its discretion, and formed no part of the public funds of

XV. LABOR AND LABOR LEGISLATION

the state (*State v. Stearns*, Oct. 25, 1919).

In the state of Washington, where a compulsory minimum-wage law is in force, a judge of the Superior Court ruled on Aug. 3 that a woman must work seven days a week to earn the legal minimum. "It is practically the universal holding of the court, in the absence of a statute, that a week means a period of seven consecutive days." In accordance with the law, the weekly wage rate had been fixed by a representative conference of employers, employees, and the public. Later the Industrial Welfare Commission made a ruling that a week of six days was meant, but the judge held the ruling not to be a part of the proceedings of the conference.

The Supreme Court of Ohio rendered a decision upholding the right of local authorities to exclude aliens from business that citizens may conduct. Cincinnati, in February, 1918, passed an ordinance to the effect that aliens should not be granted licenses to run poolrooms, and a native of Greece, who was refused a license, contested the validity of the regulation. The Court upheld the ordinance, saying that local authorities might exercise some degree of discretion in laws regulating under the police power businesses that affect the morals of the community. The ordinance did not violate the Fourteenth Amendment but was within such discretion by the municipal authorities.

SOCIAL WELFARE

Workmen's Compensation.—The workmen's-compensation movement was marked by the passage of such legislation in three of the Southern states, Alabama, Missouri and Tennessee, and in North Dakota making in all 45 states and territories that have enacted workmen's-compensation laws (see also *Labor Legislation, infra*; and XIII, *Property Insurance*). Among the states that already had workmen's-compensation legislation, there was a very general tendency to liberalize the benefits either by increasing the cash benefits provided, by raising the time and financial limitations placed upon the medical care, by decreasing the waiting period, by increasing the pe-

riod of compensation, or by extending the coverage of the act.

There has been a general movement to recognize the employers' hesitancy to employ a man already partially disabled and to make special provision for compensation of second injuries. Legislation, as in Massachusetts, provides for the accumulation of a special fund from which part of the disability benefits of partially handicapped persons may be paid. Sympathy for the returning soldier and the fear that the injured soldier might be handicapped in finding suitable employment has led to this legislation, which also does justice to the industrial cripple.

The compensation movement was marked by another new development, the reeducation and rehabilitation of crippled men. A distinct effort is now under way to apply to industrial cripples the methods that were applied to war cripples. Eight states, California, Illinois, Minnesota, Nevada, New Jersey, Oregon, Pennsylvania, and Rhode Island in 1919 passed legislation authorizing work of this character. Both houses of Congress also passed bills which provide Federal aid to those states which make provision for the reeducation of industrial cripples. (See also *Labor Legislation, infra*; and XXX, *Education*.)

Health Insurance.—The health-insurance movement was marked by the appearance of numerous state reports and by an unusually active legislative campaign in New York (see also *Labor Legislation, infra*). The California Social Insurance Commission issued a second report in which it outlined the principles that should be followed in framing compulsory health-insurance legislation suited to California's needs. The Ohio Health and Old-Age Insurance Commission reported by a majority in favor of compulsory health insurance and recommended legislation embodying the principles of the standard bill of the American Association for Labor Legislation. The preliminary report of the Pennsylvania Health Insurance Commission recommended the distribution of the burden of sickness among the workers, industry and the public. A majority of the Health Insurance Commission of Illinois opposed compulsory health insurance, whereas the

minority favored it, pointing out that the recommendations of the majority were contrary to the facts disclosed by the Commission's own scientific study. In Wisconsin a majority of the Special Committee on Social Insurance opposed compulsory health insurance but recommended compensation for occupational diseases; the minority report attacked the majority report for having centered the discussion on the constitutionality of a particular bill instead of considering the fundamental question of compulsory health insurance. The Connecticut Commission on Public Welfare advocated postponing consideration of health insurance until after the period of readjustment following the war. In New York a Reconstruction Commission appointed by the governor recommended compulsory health insurance as a measure of "essential and enforceable health protection."

The legislature of Indiana authorized the governor to appoint an unpaid commission of five persons to investigate child welfare and social insurance and appropriated \$5,000 for this purpose. The Pennsylvania legislature, at the request of the Health Insurance Commission, created a second commission, with an increased appropriation, to formulate a definite plan for distributing the burden of sickness. In New York a compulsory health-insurance bill passed the Senate, but through action of the Speaker it did not reach an Assembly vote. (See also *Labor Legislation, infra.*)

Old Age Pensions.—Provision for superannuated industrial workers has been investigated by two state commissions which reported during the year. The Pennsylvania Commission on Old-Age Pensions presented data showing the need for provision for old age but made no recommendations as to the steps that should be taken to meet the problem; instead it asked for further time in which to study the relative merits of rival methods. The legislature has extended the life of this Commission. The Ohio Health and Old-Age Insurance Commission recommended the provision from state funds of a pension beginning at age 65 to citizens who have been residents of the state for 15 years and who have a yearly income of not more than \$350.

The movement for granting pensions to public employees has continued, California, Connecticut, and Maine having enacted legislation for particular groups. In other states, as in Massachusetts, New Jersey, and New York, there is a tendency to liberalize the existing systems, either by increasing the amount of the pension or by reducing the period of service required to qualify for a pension. Congress has had before it a bill which when passed will provide pensions for superannuated civil-service employees of the Federal Government. The bill has been favorably reported to both houses. In Illinois the Pension Laws Commission has made a survey of the existing pension systems for teachers, policemen, firemen, and other civil-service employees and recommends a consolidated system, established upon a sound actuarial basis, with contributions from the employee and the employing authority. In Wisconsin the legislature directed the Pension Laws Commission to investigate the operation of pension laws and to report to the legislature.

Safety, Health, and Comfort.—With the exception of the Women in Industry and Employment Services (see XIV, *Unemployment*), for which Congress made some appropriation, the various war-time bureaus of the Department of Labor for the safety, health, and comfort of the workers, such as the Working Conditions Service and the Investigation and Inspection Service (*A. Y. B.*, 1918, p. 453), were discontinued because of lack of funds. Among other activities, the Working Conditions Service was co-operating with the U. S. Bureau of Standards in the establishment of uniform safety codes and in an effort to unify the safety work of the country. The Bureau of Standards was to work out the codes and the Service to attempt to secure their adoption. It was planned to spend two years or more on the work and to take up first the following 14 subjects: plant arrangement, building equipment, fire prevention, elevators, hoisting and conveying machinery, steam engines and turbines, hydraulic machinery, oil and gas engines, mechanical transmission of power, head and eye protection, lumber and woodworking ma-

chinery, chemicals, explosives, and rubber goods.

A demonstration of the possibilities of joint industrial clinics for employees of plants too small to maintain individual medical service was made by the U. S. Public Health Service at Chattanooga, Tenn. The Service established such clinics for practically all the small plants of the city, organizing them in three groups, each covering about 2,500 employees. Each clinic included a first-aid department and a venereal-disease clinic and employed paid operators. The cost was said to be about \$1 per employee per year.

The Bakery and Confectionery Workers' Union began an intensive campaign to abolish night work by bakers, a conference at union headquarters showing that practically all the rank and file as well as the leaders were in favor of such action. Bills were introduced in a number of state legislatures and though none became law, the desired night-work prohibition was secured in a few union agreements. The bakers stressed in their campaign recent European laws against night work by bakers and the conclusions of certain American wartime investigations to the effect that night work was always unnatural and unhealthful.

The country-wide railroad-safety campaign, begun by the Railroad Administration in 1918 with the creation of a "safety section" in the Operating Division, was extensively developed in 1919. During the first five months of the year it was reported that 867 fewer persons were killed and 16,677 fewer seriously injured in railroad accidents than during the corresponding period in 1918. Features of the campaign were the existence of a comprehensive plan for accident prevention on a national scale and emphasis on securing the coöperation of employees. General and division, shop, and terminal safety committees were organized on each railroad. The fortnight Oct. 18-30 was set aside for a "national railroad accident-prevention drive," during which time every employee was to join in an effort to reduce accidents to the lowest possible minimum as a demonstration of what could be done.

In July 40 large Chicago concerns announced the formation of a community service organization for the purpose of providing recreation, promoting more cordial feeling between employers and workers, and "generally improving conditions."

Hours of Labor.—Although a general cessation of overtime in war industries and in some cases a period of short time naturally followed the signing of the armistice, but few voluntary changes in hours were noted during the year. Demands of strikers usually included a reduction in hours, most frequently to eight, and important changes secured in this way, such as the 44-hour week in the garment trades, have already been noted (see *Strikes and Lockouts, supra*). Several hundred employees of shipbuilding plants on Staten Island, New York, were discharged in September for failure to work 48 hours a week as required by the Federal Government. Beginning June 1 the Postal Telegraph Co. reduced hours to eight a day.

Wages.—A situation "similar to that found under hour reductions existed with regard to wage advances, which were granted mainly as the result of strikes and not so often as in 1918 through Government wage awards or the voluntary action of employers. The Railroad Administration did, indeed, make a number of wage adjustments which in effect restored the differentials between various classes of employees which existed before the general wage increases fixed by the Railway Wage Commission in 1918 (*A. Y. B.*, 1918, p. 469). An annual bonus of \$240 was granted the lower-paid civil-service employees of the Federal Government with the exception of Post Office Department employees, who received a 10 per cent. increase if they had been in the service over 18 months and five per cent. if between six and 18 months. All "non-functional" Post Office Department employees were also promised pay at the rate of time and a half for all time worked over eight and under 10 hours daily. The minimum wage of Ford Co. employees was raised from \$5 to \$6 a day throughout the country on Jan. 1. Employees of Chicago packing houses received a 10 per cent. wage

XV. LABOR AND LABOR LEGISLATION

AVERAGE WEEKLY EARNINGS IN EIGHT LEADING INDUSTRIES

	One Week in						Percentage Increase			
	Sept., 1914		Sept., 1918		March, 1919		Sept., 1914- Sept., 1918		Sept., 1914- March, 1919	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Metal	\$13.18	\$ 6.45	\$26.80	\$14.35	\$24.75	\$14.50	103	122	88	125
Cotton ...	10.00	7.70	10.00	15.37	17.10	12.75	106	100	71	66
Woolen ...	11.52	8.70	23.21	16.42	18.61	13.46	102	89	62	55
Silk	11.77	7.49	21.54	14.06	22.69	15.10	83	88	93	102
Boots and shoes ..	14.70	9.18	24.04	14.24	25.90	14.69	64	55	76	60
Paper ...	12.73	7.47	22.40	13.95	22.40	12.24	76	87	76	64
Rubber ...	14.00	9.25	28.60	12.94	29.35	14.90	104	40	110	61
Chemicals.	12.85	....	26.80	....	26.20	....	109	...	104	...

advance through arbitration in February.

According to statistics collected by the New York Industrial Commission of average weekly earnings in representative New York State factories, wages declined slightly during the earlier months of the year, though not to former levels, but rose steadily from May to August. The figures, which include office as well as shop employees, are as follows:

1914 (seven months).....	\$12.48
1915	12.85
1916	14.43
1917	16.37
1918	20.35
1919 (average for week including 15th of month):	
January	23.03
February	22.07
March	22.20
April	22.11
May	22.23
June	22.51
July	23.10
August	23.85

Figures collected by the important employers' association known as the National Industrial Conference Board for eight leading industries, given in the accompanying table, show a marked increase in weekly earnings between September, 1914, and March, 1919, but considerable declines between September, 1918, and March, 1919, in cotton and woolen mills, in the metal and chemical trades for men, and in paper mills for women. Whether the decreases were due to short time or to actual reductions in wage rates was not stated.

Cost of Living.—Contrary to some expectations, the cost of living did not on the whole decline during at least the first nine months of 1919,

but, after a slight drop in February and March, began rising again and reached record heights in July and August. The U. S. Bureau of Labor Statistics index number of retail food prices, covering articles selected and arranged so as to be typical of an ordinary family's food consumption, showed the following fluctuations, the average price for 1913 being taken as 100 per cent.:

January	185	May	185
February	172	June	184
March	175	July	190
April	182	August	192
September ...	188		

The National Industrial Conference Board attempted to compare with the cost for July, 1914, not only food prices, but all the other items making up a family budget, and concluded that the increase was 61 per cent. up to March and 71 per cent. up to July, 1919, in contrast to 66 per cent. in Nov., 1918. Their detailed figures of percentage increases from July, 1914, to the dates named were:

	Nov., 1918	March, 1919	July, 1919
Food	83	75	85
Shelter	20	22	28
Clothing	93	81	100
Fuel, heat, and light	55	57	57
Sundries	55	55	63
All items (according to their relative importance in the family budget) ...	65.9	61.3	70.8

An interesting comparison of the changes of wages in representative New York State factories with the

XV. LABOR AND LABOR LEGISLATION

fluctuations in retail food prices is made by the New York Industrial Commission. According to its figures, since June, 1914, average weekly earnings have on the whole risen slightly less than food prices:

	Average Weekly Earnings	Retail Food Prices
1914: June	100	100
1914 (seven mos.)..	98	105
1915	101	102
1916	114	115
1917	129	147
1918	160	170
1919: January ...	181	187
February	174	174
March	175	177
April	174	184
May	175	187
June	177	186
July	182	192
August	188	194

A nation-wide agitation to reduce the cost of living was started on July 30, when the president of the Brotherhood of Locomotive Engineers asserted that either there must be a general rise in railroad wages or the cost of living must be reduced. The president of the Brotherhood of Railway Trainmen stated that high prices were driving the country toward a social upheaval and that profiteers must be punished. The cure for the situation was not to be found in higher wages. At this time also the railroad shopmen were pressing their demands for a wage increase to meet the high cost of living (see *Strikes and Lockouts, supra*). The Cabinet immediately took up the problem. The War Department announced that large quantities of surplus Army food, mostly bacon and canned goods, would be sold through municipal authorities at low prices. The Attorney-General announced that he would prosecute all profiteers and received a special appropriation from Congress for the purpose. He seized certain alleged hoards of food in cold-storage warehouses and asked the coöperation of state food administrators in obtaining evidence of hoarding or profiteering and in preparing "fair-price lists." The Grain Corporation of the Food Administration offered flour for sale at a special price of \$10 a barrel. On Aug. 8 President Wilson sent a message to Congress on reducing the cost of living in which he urged as reme-

dies the early ratification of the Peace Treaty, legislation to check hoarding, the extension of the Food Control Act to cover fuel, clothing, and other necessities, and a law regulating cold storage. He stated that the United States must continue to help Europe, that production must be kept up, and that it was no time for strikes. His further appeal to employees, in a letter to the railroad shopmen, saying that wage increases would hinder the Government's campaign to reduce living costs and asking for a halt until normal conditions returned, has already been noted (see *Strikes and Lockouts, supra*). Of the President's legislative programme, Congress extended the Food Control Act. Official figures to show the result of the attack on high prices were not available at the end of the year, but unofficial reports indicated that prices had fallen but little, if any, since August. (See also I, *American History*; and XII, *Economic Conditions*.)

BIBLIOGRAPHY

- American Labor Legislation Review* (quarterly).—March, 1919, "Labor and Reconstruction"; June and Oct., 1919, "The Peace Treaty and the Labor Legislation Programme"; Dec., 1919, "Review of Labor Legislation of 1919." (New York, American Association for Labor Legislation.)
- ANDREWS, John B.—*Labor Problems and Labor Legislation*. (New York, American Association for Labor Legislation.)
- BRISSENDEN, P. F.—*The I. W. W.; a Study of American Syndicalism*. (Columbia Univ. Studies in History, Economics, and Public Law, vol. 83, 1919.)
- COMMONS, John R.—*Industrial Good Will*. (New York, McGraw-Hill.)
- and others.—*History of Labour in the United States*, 2 vols. (New York, Macmillan.)
- GOMPERS, Samuel.—*American Labor and the War*. (New York, Doran.)
- Journal of Industrial Hygiene* (monthly). (New York, Macmillan.)
- League for Industrial Rights (American Anti-Boycot Association).—*Law and Labor* (monthly).
- LEITCH, John.—*Man to Man; the Story of Industrial Democracy*. (New York, Forbes.)
- ODENCRANTZ, Louise C.—*Italian Women in Industry*. (New York, Russell Sage Foundation.)
- Ohio Health and Old-Age Insurance Commission.—*Report*. (Columbus, F. J. Heer Printing Co.)
- Pennsylvania Commission on Old-Age Pensions.—*Report on Old-Age Pensions*. (Harrisburg, State Printer.)
- United States Bureau of Labor Statistics.—*Monthly Labor Review*. (Washington, Government Printing Office.)

LABOR LEGISLATION

IRENE OSGOOD ANDREWS

General Tendencies.—During the year 1919 the legislative bodies in most of our 50 states and territories have added law after law to the steadily increasing mass of dissimilar statutes, supplemented also by the output of the Federal Congress. The most far-reaching Congressional action of the year affecting labor was the passage by both Senate and House of Representatives of bills for the vocational rehabilitation of industrial cripples. This legislation, when finally enacted after technical differences between the two houses have been adjusted, will open the way to coöperative action by all the states. Eight of these in addition to Massachusetts, where a beginning was made a year earlier (*A. Y. B.*, 1918, p. 473), authorized aid in re-educating and finding employment for industrial cripples. Congress also re-enacted under the Federal taxing power the child-labor regulations that had been declared unconstitutional (*A. Y. B.*, 1918, p. 465) as an exercise of authority over interstate commerce (see also *infra*; and XIII, *Public Finance*).

Among the states substantial progress was made in new legislation and in strengthening existing statutes for labor's protection. Especially noteworthy is the enactment of workmen's compensation laws in four additional states, Alabama, Missouri, North Dakota, and Tennessee. Even more significant is the impetus given to the movement for compulsory workmen's health insurance to protect wage earners and their families against the hazards of sickness as workmen's compensation now safeguards them when accidentally injured. A health-insurance bill, actively supported by the State Federation of Labor, various women's organizations, and prominent civic and social-service organizations, as well as far-sighted employers and physicians, passed the New York Senate, and in several other states official commissions, after investigations, submitted comprehensive reports as a preliminary aid to health-insurance legislation. The Ohio report in particular strongly urges the adoption of laws along the lines of the well con-

sidered health-insurance bill as developed from the Association for Labor Legislation's "tentative draft" and advanced in New York State. Indiana has now created a commission to investigate social insurance. (See also *Labor, supra*.)

Women's hours were reduced in half a dozen states. Minimum-wage laws for women and children were enacted in two additional states, North Dakota and Texas, and in the territory of Porto Rico, making 15 now in force. Although Congress continues to hold back legislation to provide on an adequate permanent basis a Federal-state employment service, several states took action to aid in meeting this need. About a dozen more states enacted criminal syndicalism and sabotage laws (see also VIII, *Law and Jurisprudence*). In five states labor unions were expressly legalized and the use of injunctions in labor disputes limited. A score of states provided by amendments for more efficient administration of labor laws.

Minimum Wage.—A number of states and the Federal Government increased the minimum rates of pay for various classes of public employees or provided for bonuses to meet the wartime increase in the cost of living. Texas established a Minimum-Wage Commission for women and children (Ch. 160), and North Dakota (Ch. 174) gave similar powers to its Workmen's Compensation Commission. Porto Rico adopted a "flat-rate" minimum-wage law for women (No. 45), making 14 states or territories and the district of Columbia that have enacted legislation on this subject. On the other hand, Nebraska repealed its Minimum Wage Act, apparently by inadvertence, in reorganizing the state government (Ch. 190). Michigan (No. 239) and Montana (Ch. 147) enacted pioneer laws requiring equal pay for men and women for equivalent work.

Social Insurance.—Employers' liability laws were extended in three states, North Carolina (Ch. 275), Oregon (Ch. 270), and Washington (Ch. 67), and the solicitation of claims was prohibited in Oregon (Ch. 95). Four

new workmen's-compensation acts were passed, that of North Dakota (Ch. 162) being compulsory, and those of Alabama (No. 245), Missouri (C. S. S. B. 389), and Tennessee (Ch. 123) being elective. Only six southern states are now without this type of legislation. In more than 30 states and in Congress existing compensation acts were amended, in most cases extending the scope of the act, increasing the scale of indemnity, reducing the waiting period, extending the provisions for medical care, making special provision for compensation for second injuries, or bringing private casualty companies doing workmen's-compensation business under more careful control. Fourteen American compensation laws are now compulsory. Eight, including the new acts in Missouri and North Dakota, base compensation on 66½ per cent. of wages, four on 65 per cent., 10 on 60 per cent., and four on 55 per cent. (See also XIII, *Property and Casualty Insurance*.)

Connecticut (Ch. 142) and Wisconsin (Ch. 457, 668) extended their laws to cover occupational diseases. Kansas (Ch. 222), Missouri (S. B. 478), and Ohio (H. B. 424) permitted blind persons to waive claims to compensation for injuries caused by their blindness, and Minnesota (Ch. 367) made it illegal to discriminate in insurance rates against the handicapped. Eight states, California, Illinois, Minnesota, Nevada, New Jersey, North Dakota, Pennsylvania, and Rhode Island, made provision for vocational rehabilitation of industrial cripples, including acceptance in some cases of the terms of the pending Federal law authorizing Government aid to states conforming to certain standards. The governor of Arkansas (H. C. R. 7-8) was authorized to appoint a commission to draft workmen's-compensation legislation. Pennsylvania (Res. 15) provided for printing the report of the Health Insurance Commission. Old-age pension systems for public employees were authorized in California (Ch. 373), Connecticut (Ch. 210), Maine (Ch. 38), and Minnesota (Ch. 23), and existing provisions were amended in Massachusetts (Chs. 94, 21, 106, 143; Sp. Chs. 49, 55, 132) and in one or two other states. Cali-

fornia (S. J. R. 5, Ch. 14) and Oregon (S. J. R. 24) urged Congress to pass the Federal Employees' Pension bill, and Wisconsin (Ch. 514) established a commission to study pension systems and make recommendations. Indiana (Ch. 197) created a commission to investigate "child welfare and social insurance" and report, with bills, to the next legislature. Oregon (S. C. R. 10) urged returning soldiers and sailors to keep up their war-risk insurance.

Hours of Labor.—Seven states, Colorado, Kansas, Minnesota, Nebraska, Nevada, Wisconsin, and Wyoming, enacted or amended laws establishing the eight-hour day for various public employees, and five states, Florida, Indiana, Oklahoma, Pennsylvania, and South Carolina, regulated periods of duty for fire fighters. Annual vacations for public employees were established or extended in Massachusetts and Wisconsin. In private employment Utah adopted an eight-hour law for women (Ch. 70), making seven western states that, together with the District of Columbia and Porto Rico, now have this advanced standard. North Dakota limited women's work to 8½ hours a day and to six days and 48 hours a week (Ch. 170), and Massachusetts reduced women's hours to nine a day and 48 a week (Ch. 113). Existing limitations on working hours were extended to new classes of women in Arkansas (those engaged by employers hiring three or less, No. 275), California (women elevator operators in office buildings, Ch. 248), Michigan (women employed in theatres, hotels, and the like, No. 341), New York (those operating elevators or employed by local traction systems, Chs. 544, 583), Ohio (elevator operators, H. B. 362), and Oklahoma (all women except druggists, nurses, and those in agriculture or domestic service, Ch. 163). Connecticut closed a loophole in its night-work law for women by barring the entire period between 10 p. m. and 6 a. m., instead of from 10 p. m. to midnight as was the previous effect of the statute (Ch. 195). On the other hand, New York exempted women reporters and news writers from the prohibition against night work (Ch. 582), and Vermont authorized its commissioner of industries to

suspend the hour limitations on woman and child labor for two months yearly for concerns handling perishable goods (No. 160). North Dakota (Ch. 168) joined the 14 states and Alaska that have adopted an eight-hour day for mine workers. Wisconsin adopted a one-day's-rest-in-seven law for factories and mercantile establishments (Ch. 653), and Michigan is the first state to attempt a similar standard for transportation, prohibiting employment for more than six days out of any seven for interurban motormen and conductors (Ch. 361). Holidays for day laborers in the District of Columbia were safeguarded by Congress (Public No. 6, 66th Cong. 1st sess.), and Porto Rico regulated the length of working spells (No. 73). Michigan adopted a constitutional amendment allowing the legislature to regulate hours and working conditions for men, women, and children (J. R. 5).

Employment.—Private employment agencies were regulated in four western states, Montana, Nebraska, Nevada, and South Dakota. California extended its law to cover private schools which charge fees for placing their students (Ch. 421), and North Carolina levied a heavy tax on persons engaging labor for use outside the state (Ch. 90). Wisconsin authorized its Industrial Commission to withhold the license for a private agency if the public office in the city is sufficient (Ch. 178). Public employment-office systems were reorganized or extended in half a dozen states, California, Connecticut, Illinois, Indiana, New York, and Tennessee, including the establishment in Indiana of a commission not only to operate the offices but to study the whole question of unemployment (Ch. 192). Wisconsin required cities to cooperate with the Industrial Commission by furnishing quarters, light, janitor service, and other necessities for state employment bureaus (Ch. 63). Special provisions for placing discharged soldiers and sailors were made in four states, Illinois, Massachusetts, Missouri, and New Jersey. New York empowered cities to open industrial-aid bureaus of their own and to provide shelter, food, and clothing to residents while employment is being secured for them (Ch. 404).

Continued cooperation with the Federal Employment Service was provided for in seven states, including petitions to Congress from Montana, Oregon, and Utah to continue the Service. Congress made two appropriations totaling \$672,000 for maintaining the Service (Public Nos. 5 and 21, 66th Cong., 1st sess.). Certain states provided for the starting of public work to meet the unemployment crisis, Oregon proposing a special issue of "reconstruction bonds" for the purpose (S. J. R. 25) and urging Congress to create a Federal board to encourage public works in time of industrial slackness (H. J. M. 12). "Job selling" was prohibited in Michigan (No. 322) and Utah (Ch. 130). California created a commission to study unemployment and recommend legislation against it (A. C. R. 12, Ch. 19), and Oregon asked Congress for action to relieve the situation caused by the return of war veterans (H. J. R. 5). The latter state also adopted petitions to Congress on developing the Pacific shipbuilding industry to prevent lack of work (H. J. M. 10, S. J. M. 14 and 19). (See also XIV, *Unemployment*.)

Child Labor.—Congress through the taxing power (see XIII, *Public Finance*) set a minimum age of 14 for the employment of children in factories and 16 in mines and quarries, and also prohibited their employment at night and for more than six days a week (Ch. 18, 65th Cong., 3d sess.). More than a dozen states adopted laws prohibiting the employment of children in certain occupations, as in mining (New Jersey, North Dakota), or raising the minimum age, educational, or physical requirements for children in general, factory, or mercantile occupations (California, Missouri, Montana, North Carolina, Porto Rico, West Virginia). Provisions for physical examination of children and issuance of employment certificates were strengthened in nine states, Connecticut, Maine, Massachusetts, Missouri, Montana, North Carolina, Ohio, South Carolina, and Wisconsin. A dozen states in effect reduced working hours for children by requiring their attendance at continuation schools to be counted as part of their period of employment (Arizona, California, Iowa, Michigan, Missouri, Montana, New

Jersey, New Mexico, New York, Oregon, Washington, West Virginia), and Missouri extended the power of its attendance officers to enter places where children are employed (H. B. 54). On the other hand, Alabama permitted the employment of boys under 14 as pages and messengers in the legislature (No. 149).

Safety and Health.—New York restricted the employment of women on local traction lines and on elevators (Chs. 544, 583), and Ohio forbade their working at certain hazardous employments, such as railroading and lifting weights of more than 25 lb. (H. B. 362). Missouri prohibited industrial employment of women for three weeks before and three weeks after childbirth (H. B. 16). California empowered the Industrial Accident Commission to forbid the use of unguarded machinery or unsafe work places (Ch. 471). Provisions for shower baths, wash rooms, drinking fountains, and the like, were adopted or amended in six states (Arizona, Arkansas, Connecticut, Illinois, Michigan, Missouri), and the same is true of rules for fire protection in four states (Minnesota, Montana, New Jersey, Pennsylvania). Connecticut required employers to furnish devices for threading shuttles to avoid use of the operatives' lips or mouth (Ch. 27), and Indiana required gas masks in work places where dangerous fumes are present (Ch. 39). Removal of coke fumes was ordered in Ohio (H. B. 346), and Oregon adopted a factory-lighting code (Ch. 181). Existing factory- and mercantile-inspection statutes were extended in two states (Minnesota, Missouri), and Nevada enacted a general shop-safety law (Ch. 225). Minnesota (Ch. 359) and Missouri (S. B. 344) strengthened their accident-reporting laws. About a dozen states amended their mine-inspection statutes or provided for mine rescue work (Arkansas, California, Colorado, Illinois, Indiana, Kansas, New Jersey, North Dakota, Ohio, Pennsylvania, Washington, West Virginia, Wyoming). Michigan (Nos. 320, 421) and Ohio (H. R. 174) dealt with warming vestibules or the height of couplers on interurban lines, and North Dakota enacted a railroad full-crew law and required shelters for re-

pair work (Chs. 169, 172). Bunks, baths, and other conveniences were specified for labor plants in California (Ch. 164), five states provided for safe construction, maintenance, and operation of boilers (Delaware, Missouri, Montana, Oklahoma, Rhode Island), and four states established safety standards for building construction (Connecticut, Indiana, Oklahoma, Texas). Electrical installation was regulated in Oregon (Ch. 163).

Administration of Labor Laws.—A score of states markedly increased the appropriations for their labor departments, workmen's-compensation commissions, and other bodies administering labor laws (California, Colorado, Connecticut, Delaware, Hawaii, Illinois, Kansas, Massachusetts, Michigan, Nebraska, Nevada, New Hampshire, New Jersey, Oregon, Rhode Island, South Carolina, South Dakota, Washington, West Virginia, Wisconsin). In an equal number of states salaries of labor commissioners, deputies, or inspectors were raised (Arizona, Colorado, Connecticut, Kansas, Massachusetts, Michigan, Missouri, Montana, Nevada, New Mexico, New York, Ohio, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Washington, West Virginia, Wyoming), and some modifications in civil-service rules were adopted (Minnesota, New Jersey, New York, Washington). Four states, Connecticut, New York, Missouri, and West Virginia, enlarged their factory or mine-inspection staffs, and three states, New Jersey, North Dakota, and Washington, established mine-inspection bureaus, and Massachusetts (Ch. 350), Nebraska (Ch. 190), Rhode Island (Ch. 1741), and Tennessee (Ch. 110) reorganized their labor departments. Alaska established the office of labor commissioner (Ch. 59). Women's bureaus were added to the labor departments of New York (Ch. 85) and Texas (Ch. 106). California empowered its Industrial Welfare Commission to issue subpoenas and administer oaths, (Ch. 204) and Minnesota authorized inspectors to enter factory offices as well as the workrooms (Ch. 110). Utah transferred the administration of child-labor laws from the courts to the Industrial Commission (Ch. 35), and in

XV. LABOR AND LABOR LEGISLATION

Wisconsin the Industrial Commission was directed to codify the labor law and its general orders (Ch. 426).

Trade Disputes.—Trade unions were legalized and the use of injunctions limited in Iowa (Ch. 213), North Dakota (Ch. 171), Oregon (Ch. 346), Washington (Ch. 185), and Wisconsin (Ch. 211). Michigan provided for the incorporation of labor unions (No. 321), and North Dakota required the union label on state printing (Ch. 173). Mediation and investigation of trade disputes were dealt with in Oregon (Ch. 178), Porto Rico (No. 36), and Wisconsin (Ch. 530), and Montana asked that copper-strike leaders be brought to justice (S. J. M. 9). Eleven states and territories joined those which define and penalize "criminal syndicalism" (Alaska, California, Hawaii, Michigan, Nebraska, Nevada, Ohio, Oklahoma, Oregon, Utah, Washington) (see also VIII, *Law and Jurisprudence*). Money appropriated for the U. S. Department of Justice is not to be used to prosecute trade unions for legitimate activities (Public No. 21, 66th Cong. 1st sess.).

Wage Payment and Liens.—More than a dozen states amended or enacted laws dealing with wage payments, including provisions for the payment of wages weekly (Connecticut), semi-monthly (Colorado, Georgia, Missouri, Montana, Nevada, South Dakota, Wyoming), monthly (California), or on discharge (California, Kansas, Minnesota, Nevada, Oregon, South Carolina, Utah); payment in a negotiable medium (Georgia, Montana, Nevada, New Jersey, Utah); and the collection by law of unpaid wages (California, Oregon, Wyoming). Assignment of wages was regulated by Arizona (Ch. 91) and Connecticut (Ch. 210), and garnishment further regulated by New York (Ch.

278) and Porto Rico (No. 32). Washington dealt with seasonal labor contracts (Ch. 191). Arizona (Ch. 174), Nevada (Ch. 168), and Oregon (S. C. R. 12) discriminated against employment of aliens on public work. Montana provided for periodical reports on alien employees (Ch. 134), while Minnesota recommended to Congress a character test for immigrants (R. 14), and Tennessee urged Congress to pass the Burnett Immigration bill (H. R. 22). Illinois required weigh men in coal mines to be citizens (S. B. 580). Porto Rico took steps to protect emigrant laborers (No. 19). Statutes protecting wages by lien, bond, or the like were passed or modified in eight states (California, Illinois, Iowa, Michigan, Missouri, Oklahoma, Oregon, Wyoming). Legislation tending to enforce the performance of labor contracted for was adopted in four states, California (Ch. 512), Florida (Ch. 7917), North Carolina (Ch. 274), and Oregon (Ch. 313), while Colorado took steps to enforce the act against securing labor under false pretenses (Ch. 79).

Miscellaneous.—Congress authorized the President to convene the International Labor Conference (see *Labor, supra*) provided for in the Treaty of Peace with Germany (Pub. Res. 9, 66th Cong. 1st sess.). Eight states provided for special state commissions to investigate or deal with industrial matters. These include reconstruction commissions (Delaware, North Carolina, Wisconsin, Wyoming), an industrial-code commission (Washington), a negro industrial commission (Missouri), and an industrial-relations commission (Michigan). Massachusetts broke new ground by permitting manufacturing corporations to provide for the election of employee representatives to their boards of directors (Ch. 70).

XVI. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

AGRICULTURE

E. W. ALLEN

The Crop Year.¹—The "Liberty" wheat programme outlined in the fall of 1918 (*A. Y. B.*, 1918, p. 481) contemplated a sowing of not less than 45,000,000 acres of wheat in the fall, which with normal yield was expected to produce 636,000,000 bush. The area was apportioned among the states as formerly and campaigns were conducted through the county agents and otherwise. The response was so large, stimulated in part by the guaranteed price, that the acreage aimed at was exceeded by nearly 5,000,000 acres, a one-third increase over the acreage in 1918. The estimated yield of winter wheat was 371,636,000 bush., or about 166,000,000 bush. more than in 1918. Blight, scab, and black rust, with other minor troubles, however, cut down the early prospects for spring wheat by nearly 5,000,000 bush., so that the crop as estimated in December was 209,351,000 bush. This represented a falling off of about 147,000,000 bush. compared with 1918. The acre yield of spring wheat was low, only about nine bush. per acre, which brought down the average for all wheat to less than 13 bush., whereas for the past six years it has been about 15 bush. The combined production of winter and spring wheat was therefore only approximately 19,549,000 bush. more than in 1918 despite the large acreage.

The indicated corn crop was a large one, over 2,900,000,000 bush., which has rarely been exceeded; it is nearly 170,000,000 bush. above the average, and over 400,000,000 bush. in excess of the 1918 crop. The season was

quite generally favorable and the acre yield high. The production of oats, barely, and rye was materially below that of 1918 in each case, and below the previous five-year average except in the case of rye. During the war this cereal assumed a large place in American agriculture, the acreage in 1918 being more than double that of 1914, and although it was nearly maintained in 1919, the acre yield declined.

White potatoes showed a falling off of over 50,000,000 bush. compared with 1918, the production being considerably below the five-year average. Sweet potatoes, on the other hand, produced an unusually large crop, some 25,000,000 bush. above the average. The rice crop was the largest ever grown in the United States, occupying a little over 1,000,000 acres. Hay was also a bountiful crop, considerably above the average for five years.

The cotton crop indicated in December was about 11,000,000 bales, compared with 12,041,000 in 1918, and a five-year average of 12,847,000 bales. The acreage was considerably reduced, being over 2,400,000 acres less than in 1918. The acreage planted to tobacco in 1919 was 1,901,200 acres, of which 187,800 acres was to cigar types and the balance to chewing, smoking, snuff, and export types. The estimated tobacco crop was a large one, 1,389,458,000 lb., compared with 1,439,071,000 in 1918, the largest crop ever produced. Owing to war conditions the 1918 crop was marketed at high prices for some of the leading types. The domestic manufacture of leaf tobacco in the last three years has shown a large in-

¹ For the detailed December estimate of the production of the principal crops, see the tables at the end of this department.

crease, due mainly to the increased manufacture of cigarettes.

The Louisiana sugar output was apparently less than half that of 1918, amounting to only about 138,000 tons, as compared with 280,900 tons in 1918. Less cane was grown in 1919 than in the preceding year, and poor stands, the mosaic disease, shortage of labor, and bad growing weather contributed to the short crop. The area planted to sugar beets in 1919 was the largest on record, 890,400 acres, or 200,700 more than in 1918, and 83,800 more than in 1917, the highest previous year. Colorado had much the largest area and largest increase in acreage; Michigan was second, California third, and Idaho fourth. The indicated production of beets was 6,387,000 tons, nearly 500,000 more than in 1918, and forecast a sugar production of some 764,000 tons. (See also XII, *Economic Conditions*.)

Programme for 1919 and 1920.—

Early in the year the U. S. Department of Agriculture called attention to the new factor introduced in the food situation with the signing of the armistice, the opening up of channels of trade, and resumption of production in Europe. This had a material effect upon the cereal and other food requirements. Exports of farm products in 1918 far exceeded in value those of any previous year, due partly to abnormally high prices; but in quantity as compared with the five years preceding the war the export of corn in 1918 increased one per cent.; wheat, 26 per cent.; oats, 1,196 per cent.; and barley, 234 per cent. On the other hand, cotton showed a decreased export of 47 per cent.; tobacco, 26 per cent.; glucose and grape sugar, 46 per cent.; and cottonseed cake, 95 per cent. Estimating the probable import requirements of Europe from the United States, a programme was issued by the Department of Agriculture showing the crop requirements, especially in cereals and cotton, and on the basis of these the area to be planted. It also forecasts the supplies of seed, fertilizers, and other requirements, as well as the outlook for labor; and offered suggestions for a return to

sound agricultural practice which to some extent had been interrupted by the emergency demands.

Again in the fall of 1919 the Department issued planting recommendations based on reports on foreign conditions and probable needs. These recommendations included 42,000,000 acres of fall-sown wheat, or approximately 85 per cent. of that sown in the fall of 1918, and 20,000,000 acres in the spring of 1920, about 88 per cent. of the spring-sown crop of the 1917 and 1918. These areas would give an estimated production of 830,000,000 bush. of wheat, 200,000,000 of which would be available for export.

The annual consumption of rye in the United States was stimulated during the war to about 50,000,000 bush., which, if maintained with the export of 25,000,000 bush., would call for the planting of from 5,500,000 to 6,000,000 acres, in comparison with 6,800,000 acres sown in the fall of 1918. This suggests the plan for a gradual return to normal conditions with the passing of the emergency demands.

U. S. Department of Agriculture.—

There were an unusual number of changes in the personnel of the Department of Agriculture during the year. Clarence Ousley and Prof. G. I. Christie, who had been serving temporarily as assistant secretaries, resigned in the middle of the year. James R. Riggs, of Indiana, a farmer and manufacturer, was appointed Assistant Secretary in September. The chiefs of two bureaus changed: Thomas H. MacDonald, formerly chief engineer of the Iowa State Highway Commission, succeeded Logan Wallace Page of the Bureau of Public Roads, who died late in 1918; and Charles J. Brand of the Bureau of Markets, who resigned to enter commercial work, was succeeded by George Livingston as acting chief. In the Office of Farm Management Dr. Henry C. Taylor of the University of Wisconsin was appointed chief, *vice* W. J. Spillman resigned. A partial reorganization of the Office was effected, its scope and relationships being defined and plans developed for its activities in farm management, farm economics,

including cost of production of agricultural products, farm organization, farm finance, land utilization, and farm-life studies. The plans were developed from a programme suggested by a committee of experts called together by the Department to study the matter. Special emphasis is to be given to studies of cost of producing farm products which will enable the elements of cost to be analyzed.

The Department experienced much difficulty in maintaining its personnel, especially the scientific staff. The turnover in the case of some of the bureaus amounted to as much as 75 per cent. It was necessary to allow some features to remain in abeyance because of the difficulty of getting suitably trained persons. The work of the Department in some lines, as in marketing, with legislation which has followed, has developed a call for men in the industries concerned, for which the Bureau of Markets must be largely looked to as the main training ground. The loss from that Bureau has been large and exceedingly serious.

The Act making appropriations for the Department of Agriculture was not passed until more than three weeks after the close of the fiscal year on June 30 (see I, *Congress*), and as the old appropriation was not continued in force, the Department, the experiment stations, and the extensions forces were without funds for that period. The Agricultural Appropriation Act as finally passed and approved on July 24 was the third submitted during the year for the Department's support, the first failing of enactment prior to the expiration of Congress in March, and the second through being vetoed by the President on account of a clause repealing the daylight-saving law.

For the two years preceding emergency appropriations supplemented the regular allotment, but the Act for 1919-20 makes provision for both the normal activities and those previously carried under emergency legislation that are to be continued. Although it aggregates \$33,900,211, therefore, or over \$6,000,000 more than the preceding Act, it represents a decrease of \$5,000,000 from the

previous year, including the emergency money. Besides this regular appropriation the Department's resources include various permanent appropriations under the Road Act, Agricultural Extension Act, meat-inspection provision, etc., amounting to over \$28,000,000, and these, with the allotment from the printing fund and other sources, nearly equal the amount carried in the annual Appropriation Act.

The heaviest reduction was in the funds for agricultural extension work, amounting to more than \$4,000,000. Some of the larger appropriations are: \$5,783,231 for the Bureau of Animal Industry, including a large increase for animal-disease control, with \$1,500,000 for tuberculosis (see also *Live Stock*, *infra*); \$5,966,869 for the Forest Service, with \$600,000 additional for further purchases under the Appalachian Forest Reserve Act and \$100,000 for coöperation with the states in fire protection under that Act, the bulk of the appropriation being for the administration, protection, and development of the national forests, which in 1918 returned \$4,358,414 in receipts (see also *Forestry*, *infra*); \$4,905,820 for the States Relations Service, including the provisions for the state and insular experiment stations, agricultural extension work, studies in home economics, and agricultural education; \$3,379,638 for the Bureau of Plant Industry, with an enlargement of the Congressional seed distribution, provision for study and control of several new injuries diseases, and development of other lines (see also *Diseases of Plants*, *infra*); \$1,391,571 for the Bureau of Chemistry, for the enforcement of the Food and Drugs Act, investigation of food products, and similar lines; \$1,371,360 for the Bureau of Entomology, including \$250,000 for combating the European corn borer in coöperation with Massachusetts and New York, the infested states, \$100,000 for the campaign against the pink bollworm of cotton, and smaller amounts for several other pests (see also *Economic Entomology*, *infra*); \$742,170 for the Bureau of Biological Survey, the largest items of increase being for the enforcement of the Migratory

Bird Treaty Act, and for destruction of wolves, gophers, and other animals injurious to agriculture and live stock; \$594,320 for the Bureau of Public Roads, in addition to the sums mentioned above for road construction; \$2,811,365 for the Bureau of Markets, a reduction of nearly half of the amount available in 1918 including the emergency appropriation, covering marketing and distribution studies, market-news surveys, market-inspection surveys, and enforcement of the Cotton Futures, Grain Standards, Warehouse, and other Acts; \$1,880,210 for the Weather Bureau; \$491,235 for the Bureau of Soils; and \$371,102 for the Bureau of Crop Estimates.

Agricultural Experiment Stations.

—There were changes in directorship of the experiment stations in Arizona, Georgia, Massachusetts, Mississippi, and Washington; and in California a separate director of the station work was provided under the dean of the College of Agriculture. H. A. Morgan, dean and director of the Agricultural College and Station in Tennessee, was elected president of the State University but retained his supervision of the station. Director W. R. Dodson of Louisiana also resigned to take effect at the close of the year after 25 years of service.

The stations continued to suffer considerably from the inroads on their forces made by the war and the industries. Although many of their men who had been in the Army had returned, others entered the educational work of the expeditionary forces (see *infra*) and were absent in Europe for a part of the year. There were also many changes in the staff of workers, an unusual number of men resigning to enter industrial work. On the whole, however, the activities of the stations were well sustained and they were able to carry forward their principal lines of investigation without serious break. This in view of their diminished forces and the many demands upon them is highly creditable.

The principle of supplementing the Federal funds for general station work was recognized by several of the states that had not previously made such appropriations, and in others

there were material increases or provision for new features. In Arkansas the legislature authorized the purchase of land for a new substation in the southern part of the state, and provided \$75,000 for land for a farm for the college and station at the state University. In Florida a new citrus branch station was established at Lake Alfred. The property contains 15 acres of citrus groves and five acres of one-year set. Funds for the erection of buildings and maintenance for the present biennium were subscribed by the Polk County citrus growers. In coöperation with the U. S. Bureau of Public Roads the Florida Station has installed a plant with a view to determining the value of sewage when applied to the sandy soils of the station farm.

The Indiana Station has acquired by gift a 400-acre farm in northern Indiana to be used to study agricultural problems of that section, and another tract of 67 acres for soil-fertility tests. The Utah Station received an appropriation of \$20,000 for studies on underground-water development; it also established a new department of human nutrition. An act of the Wyoming legislature placed under the Experiment Station the series of farms formerly controlled by the State Farm Board, which will make possible the development of substations to meet varied conditions of typical sections of the state. In Texas a commodious fire-proof building for research and station administration was completed and occupied during the spring. The Washington legislature provided for a new \$175,000 building for dairying, to be used by the Agricultural College and Experiment Station, and \$55,000 for the completion of the agricultural building begun several years ago; \$35,000 for buildings, equipment, and other expenses of a new irrigation substation at Prosser; and \$80,000 for land, stock, and a new dairy barn at the Puyallup substation. Early in the year the experiment station in the Virgin Islands was formally turned over to the administration of the Federal Department of Agriculture.

The provision of industrial scholarships for graduate work in the ex-

periment stations is increasing. These are supplied by industrial concerns for studies on problems of importance to them and likewise of interest to agriculture. The element of propaganda is carefully eliminated and the investigation is conducted entirely under the station, which publishes the results. Coöperation among the stations in working out problems of broad general interest is steadily increasing. The experiment stations in the southern states have taken up this matter vigorously through their organization, and during the year a considerable number of stations in various parts of the country joined in a coöperation undertaking, outlined by the Botanical Committee of the National Research Council, relating to the salt requirements of representative agricultural plants.

A typical example of the manner in which results of station work are being employed in practice is supplied by the case of Kanred wheat, a new variety developed at the Kansas Experiment Station, commendable especially for its earliness and resistance to winter killing and rust. About 50,000 acres of this wheat were grown in Kansas in 1919, and its substitution for other varieties in the hard-wheat belt is progressing rapidly. Extensive tests have shown it to outyield other standard or locally grown varieties by from $3\frac{1}{2}$ to four bushels an acre.

Agricultural Extension Work.—The total amount available for extension work in agriculture and home economics for the fiscal year 1918-19 was in round numbers \$15,671,000, about half of which was devoted to county agents. The amount available for 1919-20 is approximately \$14,200,000, which represents a decrease of about \$4,000,000 in the Federal appropriation due to the discontinuance of the emergency fund, amounting in 1918-19 to \$6,100,000.

An interesting feature is the extent to which the counties are providing funds to carry on this work. In 1918-19 the contributions from this source amounted to \$2,500,000, whereas in 1919-20 they will exceed \$4,100,000. At the same time the

contributions from the states, agricultural colleges, and miscellaneous sources have increased from \$3,600,000 to \$4,300,000. The reduction in Federal appropriations has thus had a marked effect in stimulating state and county contributions, so that for 1919 sources within the states will contribute about three dollars for two dollars from Federal sources.

On July 1, 1918, there were over 6,200 coöperative employees engaged in county-agent work, home-demonstration work, and boys' and girls' club work. There was something of a falling off during the year, and as soon as it was realized that the Federal appropriation would be largely decreased, the number of employees decreased very rapidly, so that by Oct. 1, 1919, it had fallen to 4,050 persons, 2,500 of whom were engaged in county-agent work, 1,100 in work with women, and about 450 in boys' and girls' club work. The number of counties having male county agents has been quite well sustained, amounting on July 1 to 2,240, but the number of women agents has fallen off considerably. The war developed the extension system very rapidly and increased the number of counties receiving the service of a man agent by over 1,000 from 1916 to 1919, and more than doubled the number having a woman agent.

Special attention has been given during the year to developing and establishing on a permanent basis coöperative agencies among farming people, with the result that the extension work now rests more securely on the initiative and active participation of the people themselves. Two-thirds of the counties in the South have perfected county organizations, and the other third have prepared for them by community organizations. The county farm bureau membership in the northern and western states has increased to 400,000. These organizations play a large and important part in the extension work, securing the active participation of the farming people in carrying out county and community programmes, and have taught them the importance and power of concerted action. These county organizations united in the

fall, forming a large and powerful body known as the American Farm Bureau Federation.

The county agents have not only aided farmers in bettering their methods of production and in laying the foundation for improved agricultural practice, but have coöperated with specialists of the Federal Department of Agriculture and the states in assisting farmers to organize on the proper basis for marketing products and purchasing supplies. The work of specialists in connection with extension was greatly expanded during the war, and it has been still further enlarged since the armistice. The purpose of the women's work is to increase production and conservation, encourage thrift, and promote health and better home conditions. The boys' and girls' club work has proved to be an influential factor in increasing production and improving farm practice and conditions.

Agricultural Reconstruction.—The unrest pervading all branches of industry has extended to the farmers of the country and led to considerable agitation for a larger recognition of their interests and a more adequate public policy toward their industry. As constituting the largest industry and representing the largest investment in the country, the American farmers have given notice that they will take a larger part in legislative matters and will press their claims for consideration as they have not in the past. Although organized into a variety of local and national bodies, they have not been in position to make themselves widely felt in public matters, partly because their large organizations have not been articulated as a whole, and there has not been agreement upon the policies to be advocated. Some of the bodies have been viewed as radical and others as ultra-conservative.

The formation during the war of the National Board of Farm Organizations with headquarters at Washington was an attempt at union for greater strength and for effectively placing the agricultural interests before the public. That this body is regarded as a permanent one is indicated by the announcement of its intention to build a "temple of agri-

culture" at the National Capitol at a cost of \$1,250,000, to serve as a general headquarters for the organized farmers of America.

In the widespread protest against the high cost of food products much attention has been called to the unusually high prices the farmers are receiving and it has been urged that a reduction in price should begin with them. This was taken as indicating a lack of understanding of the farming business, of the greatly increased cost of farm labor, fertilizers, implements and machinery, and everything the farmer has to buy, and especially of the relatively small return received in the past for labor and investment compared with other industries. The average price of articles bought by farmers in 1918 is estimated by the Department of Agriculture to have been about 32 per cent. higher than in 1917, 95 per cent. higher than in 1914, and 108 per cent. higher than in 1909. On the other hand, the prices of products which farmers sell were only about 14 per cent. higher in 1918 than in 1917, but about 97 per cent. higher than in 1914. That is, since 1914 the increase in the two classes has been in about the same proportion. The Secretary of Agriculture has combated the view that a drop in price of farm products should precede a decline in wages, since the farmer's operations cover a year during which he would have to continue buying manufactured products at abnormally high prices. Everything possible is being done to enable farmers to decrease the cost of production so that if prices fall their loss will be minimized.

The influence of the farmers was felt in the repeal of the daylight-saving law, which they hold to be disadvantageous to them (see also *Agricultural Legislation, infra*). They have been aroused over the stand of labor and the steadily shortening day in the industries, as well as the wages in comparison with conditions on the farm. The farmers were represented in the National Industrial Conference convened by the President in Washington in October, delegates being appointed from the National Grange, the National Board of Farm Organizations, and the National

Farmers' Council. Some dissatisfaction was expressed at the small representation allowed farmers in comparison with labor and capital, but it was explained that three additional persons had been placed on the committee representing the public, two of whom were farmers and the other an agricultural editor. The claims of the industry and the need for a comprehensive and progressive policy which should provide for certain remedial measures were forcefully presented at this conference.

The convention of the Association of American Agricultural Colleges and Experiment Stations at Baltimore in January devoted special attention to the economic and social problems of reconstruction. The remarks of the Secretary of Agriculture on "To-day and To-morrow in American Agriculture" dealt broadly with this subject and some of the specific agricultural problems to be met; and the president of the Association, Dean E. Davenport, in a notable address emphasized the great need of a more definite policy in relation to agriculture, "a policy that shall be national in its scope, universal in its interests, and comprehensive in its procedures." He enunciated a series of principles fundamental to the proper development of American agriculture, recommended the establishment of a permanent national body to concern itself with broad and judicial studies of agricultural conditions, and to outline measures for legislative and administrative action. The Secretary of Agriculture in his annual report likewise called attention to the claims of agriculture and advocated a comprehensive survey of rural conditions and needs of the industry as a basis for the formulation of a definite programme.

In a book entitled "*The Farmer and the New Day*" (Macmillan) President Kenyon L. Butterfield discusses the rural problem, rural organization, and rural democracy. He likewise urges the formulation of a national rural policy by a permanent conferring group representative of the Government and the farmers.

Effects of the War on Agriculture.—An illuminating study has been presented by Prof. B. H. Hibbard, of

the University of Wisconsin, in a volume entitled "Effects of the Great War upon Agriculture in the United States and Great Britain," issued by the Carnegie Endowment for International Peace. He compares conditions before the war with the production, prices, labor supply, and general property of the farmers in 1918, discussing the effects of war conditions and prices on such features as intensity of cultivation, purchasing power of an acre of crops, etc. He explains that intensive cultivation means a more complete and painstaking use of the soil in the terms of labor and capital. Whereas the total area farmed in the United States has expanded a little during the past few years, the amount of labor available for farms is somewhat less than usual, from which Professor Hibbard concludes that "a general move toward more intensive culture is out of the question."

Fertilizers.—More than 150,000 tons of nitrate of soda, a large part of which was originally provided for munitions purposes, was sold to farmers at cost under the provisions of the Food Control Act. Following the armistice the War Department released to the Department of Agriculture 111,000 tons of nitrate at a salvage price, and to this was added 40,000 tons obtained by the Department from Chile too late for use in 1918. The full amount was taken by farmers in quantities ranging from a bag of 200 pounds to 300-ton lots, resulting in an estimated saving of \$1,500,000. In addition to this nitrogen supply, the production capacity of sulphate of ammonia plants was increased from 200,000 tons in 1913 to approximately 400,000 tons in 1919. The future of the Government plants constructed for fixing atmospheric nitrogen in various forms (*A. Y. B.*, 1918, p. 658) remained undecided. In this connection Dr. J. G. Lipman of New Jersey was sent to Europe by the Department of Agriculture in coöperation with the War Department to investigate especially the use which is being made of fixed nitrogen in agriculture.

The production of potash in the United States in 1918 was about 53,600 tons of actual potash (po-

tassium oxide). The estimated possible production of plants now ready for operation is 100,000 tons of actual potash, about half of which would be derived from natural brines from Nebraska lakes. Working with greensand and greensand marl from New Jersey and Virginia, containing from 1.52 to 7.63 per cent. of potash, the Department of Agriculture found that sufficient potash may be made available from these materials to meet the needs of many farm crops. During the year considerable difficulty was experienced by potato growers from the use of the new American potashes made from brines, because of the presence of considerable quantities of borax. This material has a deleterious effect on plant growth, and where mixed fertilizers containing it are applied to potatoes under certain cultural conditions, a poor stand followed, frequently resulting in heavy loss. The danger from this source and possible means of avoiding it are under scientific investigation. (See also XXIII, *Agricultural Chemistry*.)

Active propaganda is conducted in various parts of the country by the fertilizer manufacturers through their associations, especially in the South and Central West, based to considerable extent on local trials and the results of experiment-station work. Evidence of the attempt to maintain this propaganda on a sound basis is supplied by the provision of short courses for fertilizer salesmen arranged by several of the agricultural colleges at the request of the trade associations. The first of these was given at the New York State College of Agriculture in the summer of 1918 as a result of arrangements by the National Fertilizer Association. The success of this venture led the Southern Fertilizer Association to arrange to send its salesmen in the fall of 1919 to similar short courses of a week each provided by four agricultural colleges in its territory.

The Beet Sugar Industry.—There are now approximately 100 factories in the United States for making sugar from beets. About one-fourth of these factories were built during the war, which has given an impetus

to beet-sugar production in this country. In recent years efforts have been made to produce sugar-beet seed in this country in commercial quantity. In 1918 nearly 6,000 acres of beet seed were grown, yielding over 4,000,000 lbs. Despite the increase in area and production of seed in recent years it has been necessary to import about twice as much as is grown at home. To make the industry safe and permanent a very large increase in acreage of seed is considered necessary, and on account of the shortage of seed in Europe and the probability of the large demand for it there with the increase return to beet growing, the Department of Agriculture has strongly urged beet growers to provide home-grown seed for the 1921 crop. The acreage was doubled in 1919 with a production of 6,700,000 lbs. of seed.

A bulletin entitled "The Sugar-Beet Industry in the United States," by Dr. C. O. Townsend, was published by the Department of Agriculture (Bull. No. 721), and another (No. 726) on "Production Costs in Sugar-Beet Growing." A manual entitled *The Sugar Beet in America*, by Dr. F. S. Harris, was published during the year. (Macmillan).

Sweet Clover.—Sweet-clover, formerly despised as a weed, is being extensively grown now over a quite wide range of country. It has become a prominent crop in rotations and as a catch crop for soil improvement, and has proved excellent for hay and pasture, a mixture with blue grass making a pasture with nearly double the carrying capacity of blue grass alone. The green material may be used to good advantage for silage, and it is frequently a profitable seed crop.

Russian Sunflower.—The Russian sunflower is coming into prominence as a forage crop and especially for ensilage. Sown in rows 30 in. apart, the plants standing from nine to 12 ft. high, yielded from 25 to 30 tons of forage per acre in Montana, which dairy and beef cattle liked as well as corn, either green or as silage.

Range Management.—The establishment of departments of range management in the Nevada, Utah, and Kansas agricultural colleges and ex-

periment stations marks the development of a new branch of agriculture in these institutions and attention to a new line of problems. The movement has grown in part out of the range-management studies conducted under the U. S. Forest Service. Along with these studies have gone quite extensive investigations of poisonous plants which cause large losses of range stock. The problem of handling sheep and cattle on the public domain to avoid loss from such plants is found to be more complicated than at first appeared. Another line of study has to do with the relation of rodents to the flora and the forage supply of the range, and the carrying capacity where rodents are controlled. The native range plants that have high nutritive value and withstand drought exceptionally well are being studied as to their life history, seeding habits, stages at which they are particularly subject to injury from overgrazing, etc. The work thus far shows much opportunity in the direction of more rational use of the range, especially where control can be exercised, as in the case of forest-reserve ranges.

Farm Lands.—The price of farm lands is increasing steadily in the United States, the average for medium-grade plow land being about \$74.31 per acre on March 1, 1919, as compared with \$68.38 a year previous, \$62.17 in 1917, and \$58.39 in 1916. The greatest percentage increase during the past year occurred in the South Atlantic states and Kentucky and Arkansas, and material increases were reported from Nebraska and South Dakota. Iowa is first in value of plow lands, the average being \$169 per acre, followed by Illinois with \$144.

The Federal Department of Agriculture has sounded a warning against this rapidly rising price of farm land and the probable results. There has been much speculation in these lands by persons who have reaped large profits without adding anything substantial to the value. Farmers have been induced to sell at what seemed to them high prices, to find that they must pay higher prices for other land, and have thus lost thousands of dollars. The Depart-

ment has warned that farmers buying land at present high prices may find the returns on the investment abnormally small when normal conditions are restored, and may be seriously embarrassed if the purchase is made largely on credit.

Soldiers and Farming.—As the time for discharge approached soldiers at the camps displayed much interest in going into agriculture, either through buying or renting farms or securing positions on farms. Many of the discharged men obtained employment through the Department of Agriculture and the Department of Labor, the large demand for farm labor of all kinds giving ample opportunity for placing all who were interested. Various states gave considerable attention to setting forth opportunities for soldiers to settle on farms within their borders, and the generally prosperous condition of farming afforded added attraction. A Federal measure for enabling discharged soldiers and sailors to acquire farms under favorable conditions was much agitated, various reclamation features being provided for. Although the measure found considerable support, it has thus far failed of favorable action in Congress. (See also *Agricultural Legislation, infra.*)

In the comprehensive system for the instruction of the American Expeditionary Forces in France agricultural instruction assumed a large place and met with a considerable measure of success. The instruction afforded was of various grades, to meet the diverse needs of the Army. The apex of the system was the A. E. F. University at Beaune, but the bulk of the men were given subcollegiate instruction chiefly at the many post and divisional schools. Some of the most striking work was done at the school of agriculture at Allerey and in the innumerable "farmers' institutes" and "farmers' clubs." The enterprise as a whole was in charge of President Kenyon L. Butterfield of the Massachusetts Agricultural College, who was assisted by a quite large corps of workers drawn from the agricultural colleges and experiment stations in this country. Many men in the Army who had had

special training were assigned to assist in this instruction. Trips to farms, vineyards and gardens, cheese factories, and other rural enterprises were a distinctive and valuable feature. Opportunity was thus afforded to observe at first hand the intensive farming, stock breeding, etc., obtaining in France.

Agricultural Census.—Preparations were made during the year for the new agricultural census, to be taken on Jan. 1, 1920, in connection with the fourteenth United States census. The aim is to make it the most complete and accurate census of agriculture that has ever been taken in this country. The questions will include the acreage and production of crops, amount sold or to be sold, live-stock classification by sex and by age, acreage of woodland, and the amount of land on farms drained and needing drainage. Special consideration will also be given to matters of land tenure, farm mortgages, land utilization, irrigation, quantity of dairy products and wool produced, etc. The coöperation of the county agricultural agents is being arranged for, and the experts of the Department of Agriculture will assist in the undertaking.

Miscellaneous.—David Lubin, of California, founder of the International Institute of Agriculture at Rome and the American representative on its permanent board, died at Rome on Jan. 1.

A new Department of Agriculture was organized in Idaho under provision of a law passed during the year. A commissioner was appointed and a board of nine agricultural advisors. Regulatory duties, supervision of agricultural fairs, and the promotion of marketing are to constitute the Department's principal duties. (See also *Agricultural Legislation, infra.*)

An Agricultural History Society was organized in Washington early in 1919 to stimulate interest, promote study, and facilitate publication of researches in agricultural history.

Coöperative motor-truck routes are being organized by farmers living at a distance from market, reducing cost of transporting products and effecting the added convenience of farm-to-farm pick-up service. These trucks

are also used to bring in supplies.

Bibliography.—The *Experimental Station Record*, published monthly by the U. S. Department of Agriculture, is a current review of the world's progress in agricultural research. The *Agricultural Index* (New York, H. W. Wilson Co.) is a monthly cumulative index to agricultural periodicals and bulletins. The *Monthly Crop Reporter*, published by the U. S. Department of Agriculture, gives current statistics of agricultural production and prices in the United States; foreign statistics are published in the annual *Yearbook of the Department of Agriculture*.

DAIRYING

C. W. LARSON

Production and Prices.—The dairy-cattle population of the United States during the year 1919 failed to keep up the normal increase. This was due to the high cost of feed and the scarcity of labor, and also because of the inducements to use hay and pasture land for the growing of wheat, especially in some states. The northern states hardly maintained their herds, whereas a considerable increase in the number of dairy-cattle is noted in nearly all of the southeastern states. There was, however, an enormous decrease of cattle in Texas and Oklahoma by reason of the severe drouth.

Although the dairy-cow population has not increased, the production of dairy products was the largest in the history of the country. This was brought about by more careful feeding of the animals. Creamery butter production was increased more than 50 million pounds, although 20 million pounds of cheese less than last year was made. Condensed-milk manufacture, however, made the enormous gain of over 300 million pounds. The most notable fact in the production of dairy products is the enormous increase in the production of condensed milk, which amounted to almost two billion pounds of the finished product.

There has been a steady increase in the price of the various dairy products, which has been the chief factor in keeping up production during this time of labor shortage and

XVI. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

high-priced feed. Bottled milk in cities has ranged in price during the year from about 14 to 20 cents per quart. Butter and cheese have sold at record prices. (See also *Statistics of Agriculture, infra.*)

The year 1919 marks a new epoch in the ice-cream industry. With the coming of prohibition there has been an enormous increase in the consumption of ice cream. Some states have shown as high as 50 to 75 per cent. increase over the year before, and some cities have consumed two or three times as much ice cream as formerly. The increased quantities of milk, cream, and powdered and condensed milk used in this product have had a noticeable effect upon the industry.

Organization of Dairymen.—The tendency of milk producers to organize for collective buying and selling has increased until in many sections, especially those supplying milk for direct consumption, a very large percentage of the producers now belong to such organizations. In some cities, notably New York, the price of milk to the consumer is adjusted on a fixed basis established by a committee of the producers' organization and the milk distributors. In that city the formula used in 1918 for computing the price based upon the requirements of production has been changed to one based upon the price of butter and cheese.

Exports of Dairy Products.—The same general tendency in exports that has been in evidence since the beginning of the European War in 1914 was maintained during 1919. With the ending of the war the demand for condensed milk, supplied in immense quantities to the armies, has been maintained because of the increased use of this product by civilians. The net amount of condensed milk exported was over 700 million pounds. This is about twice the amount that went into international trade from all countries at the time of the beginning of the war.

The exports of butter during the year were the largest in recent years, amounting to more than 33 million pounds. Cheese, on the other hand, decreased in export, as well as in production, the exports being only 18

million pounds, which was the least exported since 1914, less than half of the exports of 1918, and less than a third of those of 1917.

Exports of Cattle.—On account of the large destruction of dairy cattle in Europe, there has come a demand for American cattle, resulting during the year in shipments to France of about 12,000 head of dairy cows, chiefly of the Holstein breed. Plans had been made for a very much larger shipment, but the buying was discontinued, chiefly on account of the lack of feed in France. Some of the other countries are also negotiating for cattle.

Experimental Work.—The war prevented the importation of foreign varieties of cheese, and as a result there has sprung up a demand especially for the Swiss and Roquefort types of cheese. During the year the investigators of the Department of Agriculture succeeded in isolating the organisms that produce the flavor and eyes of the Swiss cheese, and a high-grade cheese of the Swiss variety is now being manufactured on a factory scale in this country. By mechanically controlling the humidity and temperature of the curing rooms, it has also been possible to imitate the climatic conditions of certain sections of France, and through this means cheese of the Roquefort type is being made successfully for the first time in America. The result of these two experiments will no doubt have a material bearing upon the future manufacture of cheeses in this country.

The most important other line of investigation undertaken during the year was an extensive breeding experiment operated by the Department of Agriculture in cooperation with a number of states, planned to breed systematically along definite lines for the purpose of establishing high production in dairy cattle. The experiment, which is for the purpose of developing fundamental principles in such breeding, will be done on an extensive scale.

Pure-Bred Sire Campaign.—For the purpose of improving the dairy cattle of the United States there has been inaugurated a nation-wide pure-bred sire campaign. It is planned to eliminate scrub sires of all kinds on

the farms. The campaign provides for a diploma from the Department of Agriculture to each live-stock owner who uses only pure-bred sires. This campaign, it is believed, will have an enormous effect upon the quality of the live stock developed in this country in the future.

Milk Campaign.—The increased price of milk has resulted in some cities in a decreased consumption of fluid milk. This was especially observed by health officials and child-welfare workers. When its harmful effects were noted, the various agencies interested in dairying, as well as the public health officials and others, undertook campaigns in many cities and also in some country districts to encourage the use of milk. The work in some cities has been intensive, and has included lectures and demonstrations before school children and various other groups of people. The idea has been to point out the importance of milk in the diet, especially for children, and to show the food value of it as compared with other foods. In a great many cases this campaign has been followed by record studies in the schools to determine the effect of the increased consumption of milk. The discoveries of certain heretofore unknown constituents in milk during the last two years resulted in further research revealing additional peculiar characteristics of milk very desirable for growing children. The milk campaigns have resulted in an increased consumption of milk to normal and even above normal in some cases.

Dairy By-Products.—The high prices being paid for whole and condensed milk have stimulated the manufacturers of butter and cheese to a fuller utilization of skim milk, buttermilk, and whey. As a result large quantities of skim condensed milk and milk powder from buttermilk and skim milk are being made, and increased quantities of whey are being converted into albumen cheese and other varieties of whey cheese, milk sugar, and concentrated feeds, especially for chickens. The production of cottage cheese and casein from both skim milk and buttermilk have been resorted to in an increasing number of plants.

LIVE STOCK

GEORGE M. ROMMEL

Meat Production.—The following table shows the production of meat in the United States, as estimated by the U. S. Department of Agriculture, for the calendar years 1917 and 1918, in pounds:

	1917	1918
Beef ...	6,653,000,000	7,650,000,000
Veal ...	731,000,000	815,000,000
Pork ..	8,450,000,000	11,248,000,000
Lamb and mutton	473,000,000	522,000,000
Goat ..	18,000,000	15,000,000
Total	16,325,000,000	20,250,000,000

These figures show eloquently how well American meat producers met the demands of the Government and the Allies for greater meat production. Fortunately, production, except in the case of beef, seems to have been maintained during 1919. For the first six months of 1919 production was 10,012 million pounds, as compared with 9,586 million pounds during the same period of 1918. Beef production for the first six months of 1919 was 2,830 million pounds, compared with 3,295 million pounds for the same period of 1918.

Exports of meat products for the two last fiscal years ended June 30 were as follows, in pounds:

	1918	1919
Beef	600,100,000	591,200,000
Pork	1,706,500,000	2,724,900,000
Lamb and mutton	2,100,000	2,200,000
	2,308,700,000	3,318,300,000

The stupendous volume of the pork exports indicates strongly not only the remarkable production possibilities of American farms, but also the great shortage of fats in Europe.

The slaughter of animals under Federal inspection was as follows for the fiscal years ended June 30, 1919:

	1918	1919
Cattle	10,938,415	11,241,991
Calves	3,322,891	3,674,227
Sheep	8,769,497	11,268,370
Goats	149,503	125,660
Hogs	35,448,848	44,208,389

XVI. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

The proportion of Federal slaughter to total slaughter in the United States is approximately 60 per cent. in the case of hogs and sheep, 45 per cent. in the case of calves, and 75 per cent. for cattle.

Meat-Animal Prices.—Prices of meat animals reached in 1919 the highest averages ever known July and August witnessing the crest. Lamb averages at Chicago were \$17.75 per 100 lb. during the week of July 19, hog prices reached an average of \$21.95 per 100 lb. during the week of July 12, and beef cattle averaged \$17.30 per 100 lbs. during the week of Aug. 16. Extreme top Chicago prices were \$18.25 during the week of July 19 on lambs, \$23.60 during the week of Aug. 2 on hogs, and \$19.35 during the week of Aug. 16 on beef steers.

Pure-Bred Sire Campaign.—During the summer of 1919 the U. S. Department of Agriculture, through the Bureau of Animal Industry, announced a pure bred sire campaign to begin on Oct. 1, 1919, having for its slogan "Better sires, better stock," and for its purpose the improvement of the domestic animals in the United States. The plan is to enroll the owners of pure-bred live stock through the county agents and other extension workers, to issue an official emblem to persons so enrolled, to disseminate information on the principles of animal breeding, and to add the influence of the Government to the movement for the eradication of the scrub.

Horses.—The horse industry in the United States is the only branch of the animal industry that did not enjoy a high degree of prosperity during the war. Although there has been a little improvement in the values of horses since Jan. 1, 1919, prices are still far below those in Europe. Exports to Europe have begun in a small way but are being confined to the better class of draft horses. It is expected that the export trade will continue to grow with the increase in available shipping space, the increase in feed production in Europe, and the improvement in the rates of exchange between Europe and the United States. An indication of the improved tone in the horse industry

was observed in the showing of Percheron horses at the Ohio State Fair at Columbus, which is reported to have been the largest exhibition of this breed ever known in the United States. None of the horses shown was imported, indicating that American breeders have taken advantage of the stoppage of exports from France on account of the war to make great advances in developing supplies of homebred animals. A few Percheron horses have been exported to England for breeding purposes during the year, from both the United States and Canada.

Beef Cattle.—The beef-cattle industry of the United States is in a transition stage. The great volume of beef exports maintained during the war will not continue, and although considerable quantities of beef are still being shipped abroad, Europe will depend more and more on supplies of this nature from the southern hemisphere. The beef produced in the United States will, therefore, again have to seek its best outlet, the American demand. The restriction of the breeding of beef cattle during the last four years on account of the droughts in the West will probably tend to offset in the immediate future the increase in the numbers of beef cattle elsewhere. The decline in prices following the signing of the armistice caught a few speculators who had bought feeders on the basis of the prices prevailing during the high tide of exports. Otherwise, outside of the drought areas, beef producers have had a fairly satisfactory year.

The development of the industry continued in the South, and it is progressing in proportion to the progress of the campaign for the eradication of the Texas-fever cattle tick. Up to Dec. 1, 1919, 70 per cent. of the territory originally quarantined had been released. On that date there were 219,581 sq. miles of area still infected. South Carolina was added to the list of states entirely released from quarantine.

Sheep.—The open winter of 1918-19 on the western ranges and the favorable spring weather following resulted in one of the largest lamb crops known in the history of the

western sheep industry. Wool prices, although not so high as the year before, continued good, and have had an encouraging effect on the expansion of the sheep industry. The increase in the number of farms maintaining sheep throughout the farming regions is quite noticeable. A prime factor in this development has been the organization of coöperative wool-marketing associations among the farmers. This movement has largely resulted in taking wool out of the hands of local buyers who often had no knowledge of wool-marketing conditions and handled their wool business with very little system. Wool in the farm states was formerly often classed with junk, and fair prices to farmers were impossible under such a system. Among the states that have been especially successful are New York, Ohio, Indiana, Illinois, Iowa, and Nebraska. The movement started in New York State where it was first organized on a county basis, and that state now has a state federation of sheep and wool societies.

Hogs.—To a certain extent the hog industry is sharing with the beef-cattle industry in the readjustment following the signing of the armistice, but whereas beef exports have materially declined, the export of pork products are continuing in great volume. Government control over hog prices referred to in the YEAR BOOK for 1918 (p. 488) continued until March, 1919, at which time the control was removed. Since then hog growers have had the advantages of an open market. Prices advanced rapidly with the removal of Government control and in August reached a top of \$23.60 per 100 lb. at Chicago. Since that date prices have receded decidedly, particularly since the spring crop of 1919 began to reach the market, and there has been a marked fluctuation from day to day. However, American producers realize that the United States is the world's source of pork supplies, and they are confident, therefore, in the maintenance of a strong export demand sufficient to absorb the surplus obtained through reasonable methods of production.

The increase in pork production in the South has attracted much atten-

tion during the year. On Jan. 1, 1919, Georgia was credited with more than 3,000,000 hogs, ranking seventh in the number of hogs among the states of the Union. The increase in southern production has gone far towards supplying the needs of the southern trade, and this in turn makes it necessary to keep open the export channels for pork products. The swine industry in Texas is rapidly recovering from the effects of the drought, which caused the complete liquidation of hogs on many farms in the western part of the state. It is a noteworthy fact that most of the farms in this area that maintained their herds of hogs in the face of the drought were those breeding pure-bred hogs.

With the approval of Congress the Bureau of Animal Industry is beginning an investigation of the causes of "soft pork," which is regarded as one of the most important problems, if not quite the most important, affecting the swine industry of the United States. The effect of peanuts, rice milling by-products, and forage plants as a whole on the quality of pork will be studied in the hope that causes for this condition will be adequately determined and remedies suggested.

The Northwestern Drought.—The extreme drought in Texas and other parts of the Southwest was broken in the fall of 1918, but it has been duplicated to a large extent in Montana and adjoining states, in parts of which territory adequate rainfall has not been registered in three years. The Montana drought has not been so disastrous to the ranges as the Texas drought, as the grass was not destroyed and the turf remained. The condition of live stock, therefore, was much better than in Texas, and practically no animals had to be moved to save them from immediate starvation. The feed problem during the winter of 1919-20 is the most serious phase of the situation. Large numbers of cattle and sheep were moved out, the inferior ones being sent direct to market, and the better class of feeders and breeding stock being placed on feed in other states. The Government assisted materially in this movement, the Department of

Agriculture organizing an emergency campaign directed by the Committee on Live-Stock Drought Relief. The Railroad Administration materially assisted by putting into effect reduced transportation rates on live stock shipped out to be returned and on feed to be shipped into the drought areas.

Stock Breeding for the South.—The record of southern exhibitors at the International Live Stock Exposition held at Chicago during the first week of December, 1919, demonstrated the development of animal industry under tick control. Nine grand championships went to southern exhibitors, as follows: Shorthorn bull and cow, Hereford bull, Aberdeen-Angus bull, Percheron mare, Poland China sow, Duroc Jersey boar, and Hampshire ram and ewe. Not all of these animals were actually bred in the South, but the fact that they were shown from southern farms shows that as good animals can be developed on southern farms as elsewhere. In addition, the team from the Texas Agricultural and Mechanical College was first in the students judging contest, and the team of Texas agricultural-club boys was second by a margin of only one point in the non-collegiate judging contest.

Bibliography.—In its series of technical bulletins, the U. S. Department of Agriculture has published the results of some of its work in the South with beef cattle, as Bulletins Nos. 628, 631, 761, 762, and 777. The following are the more important recent books on the subject of live stock:

- COFFEY, W. C.—*Productive Sheep Husbandry*. (Philadelphia, Lippincott, 1918.)
- DAWSON, H. C.—*Success with Hogs*. (Chicago, Forbes Pub. Co., 1919.)
- EVANS, Robert J.—*Hogology*. (Chicago, J. Doty Pub. Co., 1918.)
- EWING, P. V.—*Southern Pork Production*. (New York, Orange Judd, 1918.)
- KLEINHEINZ, F.—*Sheep Management, Breeds, and Judging for Schools*. Revised ed. (Madison, Wis., 1919.)
- NOLAN, A. W., and GREENE, J. H.—*Pig Raising*. (Chicago, Row, Peterson & Co., 1918.)
- ROBERTS, H. Armstrong.—*Commercial Poultry Raising*. (Philadelphia, McKay, 1918.)
- SANDERS, Alvin H.—*Shorthorn Cattle*. Revised ed. (Chicago, Sanders Pub. Co., 1918.)

VETERINARY MEDICINE

WILLIAM A. HOOKER

Legislation and Regulation.—The Agricultural Appropriation Act for the fiscal year 1920 carried special appropriations of \$1,500,000 for tuberculosis-eradication work, \$741,980 for cattle-tick eradication, \$641,045 for hog-cholera work, and \$88,800 for dourine eradication. Of the supplementary fund of \$903,960 appropriated for meat inspection, \$100,000 may be used for the inspection of horse meat. Provision was made for an increase in the salaries of about 3,000 employees of the meat-inspection service and for overtime pay, the Government to be reimbursed for the latter by the establishments receiving inspection.

Veterinary Education.—A school of veterinary medicine was established at the Georgia State College of Agriculture; a four-year course leading to the degree of D. V. M. is offered.

Bovine Tuberculosis.—The work of eradicating tuberculosis carried on by Federal and state authorities in coöperation with cattle breeders' associations and herd owners has made rapid progress. A second list of herds officially accredited as free from tuberculosis and of herds that have passed successfully one test with a view to certification, revised to April 1, was issued, showing a total of 782 herds containing 12,082 pure-bred and 6,939 grade animals as accredited, and 6,535 herds with 39,558 pure-bred and 57,685 grade animals as once tested without reaction. The appropriation for the fiscal year beginning July 1, 1919, was increased over that of the preceding year by \$1,000,000 in order that indemnities may be paid to owners of tuberculous animals. The measure provides that the amount of the indemnity shall not exceed that paid by the state, and in no case shall be more than \$25 for a grade animal or \$50 for a pure-bred animal. In response to a petition received by the county commissioners from farmers, stockmen, and others asking that a special election be held to decide whether tuberculosis-eradication work should be undertaken and made compulsory, a ref-

erendum vote was held in Clay County, Miss., in September, the first ever held in the United States on the subject of controlling bovine tuberculosis. As the vote was favorable the work of county-wide testing and eradication was immediately undertaken.

The eradication work that has been carried on in the District of Columbia through compulsory testing with tuberculin resulted in but eight animals out of 1,264, or 0.63 of one per cent., reacting in tests made during the last year. A conference of Federal and state officials called by Dr. J. R. Mohler, Chief of the Bureau of Animals Industry, for the consideration of questions relating to the promotion of the tuberculosis-eradication campaign was held at Chicago, Oct. 6 to 8, in connection with the National Dairy Show.

Cattle-Tick Eradication.—The work of eradicating the cattle tick went forward, and practically the same area as that of the banner year of 1918 was released from quarantine. With the 50,555 sq. miles of territory in six States released during the year, a grand total of 509,000 sq. miles, or 70 per cent. of the area infested in 1906, has been freed from ticks. The dippings, of which there were 47,843,791, far exceeded those of any previous year. The adoption of the poster system of disseminating information made use of during the year gave very satisfactory results, and in this way a campaign for early dipping was made particularly effective, the dipping commencing in March. A record was made in Alabama, where a state-wide law approved by the governor on Feb. 7 was put into effect in 30 days. As a result of this law, eradication became compulsory in the 24 counties of the state that remained infested, and 22 of them were released from quarantine on Dec. 1. A similar law enacted in Georgia at the 1918 session of the legislature became effective on Dec. 31, 1919.

Dourine.—Eradication work with dourine has resulted in its great reduction in Montana and South Dakota, its practical elimination from North Dakota, Wyoming, and Nebraska, and its complete elimination

from Iowa. Its eradication in Arizona and New Mexico, where it occurs largely on Indian reservations, has been more difficult, but satisfactory progress has been made. During the fiscal year ended June 30, 1919, serum samples from 46,819 animals were tested; 1,143 gave positive reactions, and the animals were destroyed. The percentage of reactions in the tests during 1919 was practically the same as that for the preceding year.

Hog Cholera.—Investigations conducted by the Federal Bureau of Animal Industry have led to the conclusion that the stable fly, which is a blood sucker, takes up and harbors the virus of hog cholera, and that it may, under favorable conditions, convey the disease to healthy animals. Negative results were obtained with the house fly, indicating that it is not an important agent in the conveyance of hog cholera from farm to farm. In the course of an investigation at the Indiana Experiment Station 20 different so-called medicinal hog-cholera remedies and cures were tested, none of which controlled the disease.

Anthrax.—In combating outbreaks of anthrax in the Gulf Coast region 30,000 to 35,000 animals were immunized by agents of the Federal Bureau of Animal Industry. Investigations by Morris at the Louisiana Experiment Station have shown that blood-sucking flies and mosquitoes are capable of transmitting anthrax by feeding upon a healthy animal after sucking blood from an infected one. He also found that the house, blue-bottle, and green-bottle flies are capable of carrying anthrax infection to wounds of healthy animals after having fed upon or developed in anthrax-infected material.

Equine Influenza.—In equine-influenza work in coöperation with the War Department 507,559 horses and mules were inspected at the large horse markets by agents of the U. S. Department of Agriculture.* Of these 5,341 animals were sent to isolation hospitals.

Sheep and Cattle Scab.—The appropriation for sheep scab was considerably increased for work against the outbreaks that had taken place,

principally in Idaho, because of the set-up in the work during the war. During the fiscal year ended June 30, 1919, there were 22,394,561 sheep inspected and 10,518,196 dipped, an increase of 14 and 88.3 per cent. respectively; over the preceding year. In cattle-scab work 935,529 animals were dipped, an increase of 46.1 per cent. over the preceding year.

Forage Poisoning or Cerebro-spinal Meningitis in Horses.—An outbreak of the disease of horses commonly known as "Kansas horse disease" took place in western Kansas and eastern Colorado and caused the loss of several hundred horses. A campaign conducted by the Federal Bureau of Animal Industry and the Colorado Agricultural College is thought to have checked the epidemic. The cause of this disease, which occasioned a loss of 20,000 horses in 1912 (*A. Y. B.*, 1912, p. 461), though not as yet determined, is thought to be a fungus or bacillus which occurs on forage. The antitoxic serum prepared by Graham (*A. Y. B.*, 1917, p. 449) has been used in botulism poisoning in man with strikingly favorable results.

Ascarids.—Further investigations by Ransom and Foster (*A. Y. B.*, 1918, p. 491) have led to the conclusion that *Ascaris ovis*, occasionally found in sheep, is merely the pig *Ascaris* in a strange host. These authors point out that the symptoms shown by experimentally infected pigs at the time of the invasion of the lungs by the larvae are frequently exactly similar to those exhibited by pigs suffering from "thumps," a popular name for a serious condition of very common occurrence among pigs. Thus it is not improbable that *Ascaris* is an important factor in the production of "thumps," since the organisms commonly occur as a parasite of pigs.

Trichinae.—In experiments by Ransom and Schwartz it was found that the vitality of the larvae of *Trichinella spiralis*, the cause of trichinosis, is quickly destroyed by exposure of the parasites to a temperature of 131° F. gradually attained, and this temperature they consider to be the thermal death point. Upon the basis of their investigations the Federal

Bureau of Animal Industry has selected a temperature of 137° F. as the minimum temperature to which pork, and products containing pork, are required to be heated when cooked in meat-packing establishments operating under the Federal meat-inspection law.

Horse-Meat Inspection.—A growing demand for the utilization of the meat of the horse, of which there are many on the western range too small or too wild to be of other use, led to an amendment to the regulations governing meat inspection and to an appropriation by Congress of \$100,000 for such inspection. Under the new regulations every establishment in which horses are slaughtered for the preparation of food products for transportation or sale in interstate or foreign commerce must be Federally inspected. The slaughter of horses and the preparation and handling of horse meat must be conducted in establishments separated from those in which other animals are killed and handled. All horse meat or horse meat products must bear the label, "U. S. Inspected and Passed by the U. S. Department of Agriculture." This inspection will open a market for the inferior animals, thus saving feed for cattle and sheep, adding hides to the leather supply, and increasing meat stocks. (See also *Agricultural Legislation, infra.*)

BIBLIOGRAPHY

- BRADLEY, O. C., and BROWNE, T. G.—*Atlas of the Anatomy and Physiology of the Horse.* (London, Baillière, Tindall & Cox, 1918.)
- CRAIG, R. A.—*Common Diseases of Farm Animals.* (Philadelphia, Lippincott, 1919.)
- EDELMANN, R., trans. by MOHLER, J. R., and EICHORN, A.—*Textbook of Meat Hygiene, with Special Consideration of Ante-mortem and Post-mortem Inspection of Food-Producing Animals.* 4th rev. ed. (Philadelphia, Lea & Febiger, 1919.)
- KAUPP, B. F.—*The Anatomy of the Domestic Fowl.* (Philadelphia, W. B. Saunders Co., 1918.)
- KINGSLEY, J. S.—*Outlines of Comparative Anatomy of Vertebrates.* (Philadelphia, Blakiston, 1917.)
- MALLORY, F. B., and WRIGHT, J. H.—*Pathological Technique.* 7th rev. ed. (Philadelphia, W. B. Saunders Co., 1918.)
- SMYTHE, R. H.—*Wounds of Animals and Their Treatment.* (London, Baillière, Tindall & Cox, 1918.)

DISEASES OF PLANTS

WALTER H. EVANS

Societies and Institutions.—The tenth annual meeting of the American Phytopathological Society was held at Baltimore, Dec. 23-28, 1918. The fifth Conference of Cereal Pathologists was held in St. Louis, Mo., June 5-7, 1919. A field meeting of American and foreign plant pathologists occurred on Long Island, N. Y., June 24-27, for the special purpose of studying potato mosaic and leaf roll. An International White-Pine Blister Rust Conference for western North America was held at Portland, Ore., April 23-24, to consider means for preventing the spread of the white-pine rust to the regions west of the Mississippi Valley. A Canadian branch of the American Phytopathological Society was formed during the year with Prof. J. E. Howitt as President. An Institute of Phytopathological Research has been established at the Rothamsted Experiment Station, England, and an Imperial Bureau of Mycology has been proposed by the Imperial War Conference. It will be located at the Botanical Gardens, Kew, England, and will work in close coöperation with that institution.

Legislation and Regulation.—Congress has appropriated to the Department of Agriculture for plant-disease investigations and control for the year ending June 30, 1920, more than \$1,092,000. The larger items specifically appropriated for are: citrus diseases, \$196,320; white-pine blister rust, \$220,728; black and stripe rusts of cereals, \$100,000; eradication of barberry, etc., \$150,000; forest pathology, \$82,315; orchard and other fruit diseases, \$80,935; cotton and truck-crop diseases, \$87,800; take-all and flag smut diseases of cereals, \$50,000. Specific authority was given for the Plant Disease Survey. In addition to the above, an appropriation of \$129,000 was made to the Federal Horticultural Board for its work in connection with quarantines and inspection against the introduction of insect pests and fungus diseases of plants. Three Federal quarantines were established during the year. Quarantine No. 37 became effective

June 1, 1919. Under its provisions the importation of nursery stock, plants, and seeds is prohibited, except as provided in the regulations of the Federal Horticultural Board. Quarantine No. 38, promulgated in April, prohibits the interstate movement of the common barberry and related plants which serve as alternate hosts for the stem rust of wheat. Quarantine No. 39, which became effective on Aug. 15, regulates the importation of rice, wheat, and other cereals from various countries on account of the presence in those countries of the flag smut (*Urocystis tritici*) and take-all (*Ophiobolus graminis*) (see *infra*).

Cereal Diseases.—Two serious diseases of wheat, hitherto unknown in the United States, made their appearance in the spring of 1919, flag smut, due to *Urocystis tritici*, and take-all, attributed to *Ophiobolus graminis*. Both diseases cause serious losses in Australia and other countries, but the source from which they came and the manner of their introduction into this country are unknown. Take-all has been reported from three counties in Illinois and three counties in Indiana. The flag smut is known to occur only in one county in Illinois. Efforts are being made to stamp out both diseases. A conference on these diseases was held in St. Louis, Mo., on May 12. In Australia, where take-all has been known for some time, Pridham claims that, in addition to *Ophiobolus graminis*, other fungi cause similar troubles. He enumerates *Cladosporium herbarum*, *Fusarium rubiginosum*, and *Mucor racemosus* as causing similar effects. Hoffer has shown that some of the rots of corn roots, stalks, and ears, and the scab of wheat are due to the same organisms, *Gibberella* spp. In Java a serious disease of corn is due to *Sclerospora javanica*, but Palm has recently shown that it differs from a similar disease of maize in India. In connection with studies on wheat rusts, mildews, etc., quite a number of investigators have reported on biological forms of rusts and mildews of cereals, many of the forms being quite closely limited as to their host relationships. The campaign for the eradication of the

common barberry, which carries the æcidial stage of the black or stem rust (*Puccinia graminis*) of wheat, was actively pursued during the past season. The occurrence of rusts on wheat and other plants in the absence of the æcidial stage of the fungus is reported and explained by the presence of perennial grasses which act as host plants for some of the rusts and thus carry them over the winter season.

Forest-Tree Diseases.—Considerable activity has been noted in connection with investigations on diseases of forest trees. The white-pine blister rust continues to demand attention in the northern portions of the United States from Minnesota eastward. Under the impulse of Federal and state laws a large amount of scouting work has been done, as well as nursery inspection, and the white-pine rust was found in the New England states, New York, Pennsylvania, New Jersey, Michigan, Wisconsin, and Minnesota. On account of the fungus spending part of its cycle on currants and gooseberry bushes, the eradication of such bushes is necessary for the control of the disease. Demonstration areas have been established in white-pine regions and the cost of *Ribes* eradication on 40,000 acres varied from 25 cents to \$2.47 per acre. Similar investigations are in progress in Canada.

Several contributions to the scientific aspect of the white-pine rust have appeared during the year. Several authors have announced that the fungus may winter over on the currant under certain conditions. Colley found the effect on the white pine varies with the age and vigor of the trees. Clinton has been successful in infecting both the white pine and various currants, and he found the infection of the white pine was through the leaves. A species of *Cronartium* known to occur in Colorado has been investigated; it has been found incapable of infecting the five-leaved pines, but it does attack the piñon pines, *Pinus edulis* and *P. monophylla*.

The European poplar canker (*Dothichiza populea*) has been reported near Philadelphia, Pa., where Lombardy poplars seem more suscep-

ible to attack than other species. In the vicinity of New York City, where the chestnut blight nearly destroyed all chestnut trees, a number of specimens of American chestnut trees have been found that have proved resistant to blight. Attempts are being made to develop an immune or resistant strain for general propagation. A study of seedling diseases of coniferous trees has shown, according to Hartley and associates, a number of species of fungus parasites capable of causing damping-off of pine and other seedlings.

Diseases of Fruits and Fruit Trees.

—The apple blotch, *Phyllosticta solitaria*, is reported as a serious menace to apple culture in various parts of the country. Gunderson claims that almost perfect control of the disease was secured by two sprayings with Bordeaux mixture or of lime sulphur. Grove reports the presence of a bacterial blossom blight of pears in England, and his data appear to indicate the organisms winter over in the soil. The fire blight of pears, hitherto almost unknown in the mountain regions of California, has assumed an epidemic form in the northern part of the state. The bacterial blight of walnuts has been reported from several localities in South Africa. Fawcett has described a disease of avocado trees in Florida that is caused by the organism responsible for citrus scab, *Cladosporium citri*. The gooseberry mildew, *Sphærotheca mors-uvæ*, known to be present in England for several years, was reported in France by Vercier.

The campaign for the eradication of citrus canker in Florida is progressing satisfactorily. On June 30, 1919, there remained but six properties classed as infected, only one of which was a new infection; nearly 500 properties had been declared as no longer danger centers. The citrus canker has appeared in South Africa, and the methods of eradication adopted in Florida are being put into effect with good results. Hutchinson has recently reported the presence of citrus canker in India, where it apparently has existed for several years. Experiments by Lee in the Philippine Islands have shown that *Pseudomonas citri*, the cause of the canker,

is capable of infecting a number of species of plants belonging to the Rutaceae as well as *Lansium domesticum*, a nonrutaceous tree grown for its edible fruits.

Miscellaneous Diseases.—The motting disease of sugar cane, previously reported in Porto Rico (*A. Y. B.*, 1918, p. 491), continues to spread in that island, and it is reported to be present in the cane-growing regions of the southern United States. In Porto Rico some promise of relief is seen in the resistance of certain varieties to the disease, and one variety, a Japanese cane known as Kavan-gieri, introduced from Argentina, is being propagated for extensive planting. Preliminary reports by Carpenter in Hawaii indicate that the disease of cane known in that territory as the Lahaina disease is due to a specific organism which has been isolated and studied. Cobb reported severe infestation of sugar cane by nematodes in Florida. The black wart disease of potatoes due to *Chrysophyctis endobiotica*, first reported in 1918 (*A. Y. B.*, 1918, p. 493), continues to be of interest. Continued surveys have shown a few additional localities where the disease is present, it having been found in Cambria County, Pa., and in two counties in West Virginia. None is an important potato-growing region. A new disease of potato has made its appearance in Ireland. It is said to be caused by a species of Phytophthora allied to that responsible for the late blight. Owen has described a spot disease of potato tubers due to *Oöspora pustulans*. The diseases of potato known as mosaic, leaf roll, spindling sprout, etc., all of which are of unknown causation, are continuing to give concern to plant pathologists. Nishimura has found that *Physalis alkekengi* may act as a carrier of the mosaic of tobacco, tomato, etc., without itself showing any evidence of disease.

Control of Plant Diseases.—In continuation of the war emergency work (*A. Y. B.*, 1918, p. 492), measures for the control of plant diseases are receiving the attention of many pathologists. Recent investigations have shown many additional diseases to be seed-borne, and a number

of seed treatments have been recently described. The treatment of cucumber seed with solutions of corrosive sublimate or formaldehyde will prevent the angular leaf spot to a great degree. Bisby and Tolaas found treatment of seed potatoes with a solution of copper sulphate efficient in controlling the black scurf. Mackie found copper-sulphate treatment satisfactory for the control of smut of wheat and barley in the Pacific Northwest, where, by reason of soil infection, formaldehyde treatments are not effective. Melhus and Rhodes report that suspending seeds for 20 sec. above a formaldehyde solution heated to 98 or 99° C. destroyed all fungi without injuring the seed. Braun claims soaking seed in water before treating them with fungicides prevented injury to the seed and increased the germicidal efficiency of the treatment. At the Nevada Experiment Station, Headley found that heating potato tubers to 35 or 40° C. destroyed nematodes and did not injure the growing capacity of the tubers. Two new fungicides have been reported. Reimer claims cyanide of mercury a satisfactory disinfectant for use in the control of pear blight, and Laymond recommends calcium carbide for similar use for the control of downy and powdery mildew of the grape.

Bibliography.—The following books on plant diseases have recently appeared:

- BUTLER, E. J.—*Fungi and Disease in Plants*. (Calcutta, 1918.)
 RANKIN, W. H.—*Manual of Tree Diseases*. (New York, 1918.)
 SMITH, R. E., ESSIG, E. O., and GRAY, G. P.—*Handbook of Plant Disease and Pest Control*. (Berkeley, Cal., 1918.)
 TAUBENHAUS, J. J.—*Diseases of Truck Crops and Their Control*. (New York, 1918.)
 WHETZELL, H. H.—*An Outline of the History of Phytopathology*. (Philadelphia, 1918.)

ECONOMIC ENTOMOLOGY

WILLIAM A. HOOKER

Societies.—The tenth annual meeting of the American Association of Economic Entomologists was held at Baltimore in December, 1918; W. C. O'Kane of New Hampshire was elected President.

Appropriations.—The agricultural Appropriation Act approved on July 24 carried \$1,371,360 for the work of the Bureau of Entomology, \$123,940 for the enforcement of the Insecticide Act, and \$129,000 for the work of the Federal Horticultural Board. The appropriations included \$105,780 for deciduous-fruit and nut insect investigations; \$147,060 for cereal- and forage-crop insects; \$100,400 for southern field-crop insects; \$134,960 for truck-crop and stored-product insects; \$35,000 for bee culture; \$16,500 for tropical and subtropical fruit insects; and \$62,330 for miscellaneous insects. In addition, special appropriations were made of \$595,800 for work with the pink bollworm of cotton; \$304,050 for the gypsy and brown-tail moth; \$250,000 for the European corn borer; \$32,000 for the Mediterranean and other fruit flies, and \$5,000 for work with the camphor thrips.

Pink Bollworm of Cotton.—The work against the pink bollworm (*A. Y. B.*, 1918, p. 494) was pressed with great vigor. Not a single specimen was found in any of the districts where eradication work had been carried on in 1918, except at El Vista, in an isolated district 14 miles south of Beaumont, Tex., where several were found late in October. In the eradication work in infested areas 3,163 acres were cleared at Barstow, 1,086 acres at Pecos, and 508 acres in the Big Bend district of Texas. The absence of grass in the fields and of volunteer cotton in western Texas made the task much easier than in the humid area. A new act in relation to the pink bollworm passed by the legislature of Texas was approved by the governor on March 10. This act, which corrects certain defects in the old act, provides for the establishment of regulated zones or districts in which the growing of cotton may be permitted. Under this act the growing of cotton in the old Trinity Bay district was permitted under regulation. A cotton-free zone was maintained in Kinney, Maverick, and Valverde counties and an area in the Big Bend district, which border on the river opposite infested territory in Mexico. Houses erected at Brownsville, Laredo, Eagle Pass, Del

Reo, and El Paso for the fumigation of trains from the infested area in Mexico were ready for operation on Oct. 1. A farmer's bulletin on the pest by Hunter has been issued by the Department of Agriculture.

Cotton Boll-Weevil.—The favorable condition for hibernation due to the mild winter of 1918-19 resulted in an unusually large boll-weevil infestation. Along the eastern border the weevil reached the limit of the cotton belt in Habersham County in extreme northeastern Georgia, and extended over the southern half of South Carolina and into the sea-island cotton district off the coast. On Oct. 15 it was found in North Carolina for the first time at Tabor, Columbus County, in the extreme southeastern part of the state. Mention may also be made of an isolated infestation found late in 1918 at Carlsbad in Eddy County, N. M. The work of the Bureau of Entomology has shown that dry, powdered calcium arsenate applied by dusting machines is the best poison for boll-weevil destruction. A machine for dusting large areas, perfected during the year by agents of that Bureau, will be manufactured in considerable quantity for use during the season of 1920.

European Corn Borer.—There was a considerable extension in the area infested by *Pyrausta nubilalis*, which has been found in two counties of New Hampshire bordering on Massachusetts and at the base of the Cape Cod peninsula, 60 miles south of Boston. Late in the year 1918 an infestation was found in the vicinity of Schenectady, N. Y., and in 1919 further infestations were found east of the Hudson opposite Albany and in Erie Counties in northwestern Pennsylvania and southwestern New York. In addition to the \$250,000 appropriated for control work with this pest, a special appropriation of \$500,000 was asked of Congress in October. The work is aimed at holding it as closely as possible to the present infested area and preventing its spread to the important corn-growing sections of the country. A conference of state and Federal officials at which methods of dealing with it were taken up was held at

Albany on Aug. 28, and at Boston on Aug. 29. A detailed report of studies of the pest by Vinal and Caffrey was issued from the Massachusetts Experiment Station, and a farmer's bulletin was prepared by Caffrey.

Japanese Flower Beetle.—Work against the Japanese flower beetle, which has become established in Burlington County, N. J., was pressed vigorously by the New Jersey Department of Agriculture in coöperation with the U. S. Department of Agriculture. There was a considerable increase in the area infested and in the abundance of the pest within the infested area, it being estimated that the beetle was 150 per cent. more abundant in October than at the same time in 1918. An account of the beetle and the control work under way was published by Goodwin in the *Journal of Economic Entomology* for February.

Sweet Potato Weevil.—This borer was held in check in Florida, Georgia, Alabama, and Mississippi through the use of weevil-free propagation material. In northern Florida and southern Georgia, Alabama, and Mississippi the areas are gradually being reduced. A farmer's bulletin on this pest by Chittenden was issued during the year.

Gypsy Moth.—The unfavorable weather condition of the winter of 1917-18, together with extensive clean-up operations on the western border of the gypsy-moth infested area, resulted in the release from quarantine in 1919 of an area of 1,700 sq. miles and had the effect of entirely releasing the state of Vermont from quarantine.

Periodical Cicada.—The appearance of brood X of the periodical cicada or so-called 17-year locust, took place as scheduled. In the latitude of Washington, D. C., it began emerging in considerable numbers on the night of May 21, and tree trunks, branches, and leaves were soon thickly studded with the cast pupa skins. The music of the insects was in the air for the month which followed, and the landscape was marred by the dead terminal twigs of deciduous trees, particularly oaks, caused by the deposition of eggs in the branches.

Potato Aphid.—It was found by Britton and Zappe that the potato-plant louse can be destroyed by the application of kerosene emulsion consisting of 30 oz. laundry soap, four gallons kerosene, and two gallons hot water, diluted to make 50 gal. of spray. The materials cost but half as much as nicotine and possess the additional advantage of being obtainable at any grocery store. An extended investigation of the biology of this pest at the Virginia Truck Station near Norfolk was reported upon by Smith. Investigations at that station have shown it to be a serious enemy of several other crops, particularly spinach, and that it plays an important part in the transmission of spinach blight.

Potato Leafhopper and Hopperburn.—Investigations by Ball have shown that the disease known as potato leaf burn, which has caused considerable injury to the potato crop in the North, is caused or transmitted by the potato leafhopper (*Empoasca mali*). Both the nymphs and adults of this insect were controlled with two applications, 10 days apart, of rather strong kerosene emulsion or Flack Leaf 40, applied from opposite directions. The detailed report of the investigations was published as a bulletin of the Wisconsin Department of Agriculture.

Apple Psyllid.—The appearance in North America of *Psylla mali*, a European pest, was reported by Brittain, who found it established and a source of injury near Wolfville, Nova Scotia.

Oriental Peach Moth.—A survey of the distribution of *Laspeyresia molesta* shows it to occur in Virginia as far west as Leesburg, Loudoun County, in southern and western Maryland, in the vicinity of Philadelphia and Lancaster, Pa., in northern New Jersey, on Manhattan and Long Islands, in southern Connecticut, and in extreme southern New York.

Walnut Aphis.—Investigations by Smith in California have led to the preparation of an insecticide by use of which the walnut aphis can be effectively controlled. This is a dry dusting mixture composed of kaolin, 74 per cent., and hydrated lime, 24 per cent., upon which two per cent.

of nicotine sulphate is sprayed. This mixture is blown upon the trees by means of a duster driven by a three horsepower gasoline engine. The average application of two to three pounds of the material per tree gives a kill of 95 per cent. It is prepared at a cost of but five cents per pound, and from 20 to 40 acres can be dusted per day.

Insect Parasitism of Nestling Birds.—Investigations by Plath in California have shown that nestling birds of many species are parasitized by the maggots of a muscid fly. Of 63 nests examined, representing six species, 39 were infested by parasitic maggots. These maggots, which are dependent upon blood in order to develop, attach to and suck the blood of nestlings at night and rest in the lower parts of the nest during the day. Plath concludes that from five to 10 per cent. of the parasitized nestlings succumb from loss of blood and others which become full fledged are so weakened as to become an easy prey to rapacious animals.

Insecticides.—The use of liquid hydrocyanic acid for fumigation of citrus trees, first publicly demonstrated in the spring of 1916 by William Dingle of Los Angeles, Cal., one of the inventors of the machine method of generation, has proved so satisfactory that it is rapidly displacing the other methods. Unlike the pot-generated gas the scale mortality is greatest at the bottom of the tent where the infestation is usually the most severe. Reports upon the method by Woglum and Quayle were issued during the year. Davis reported that tests made in various parts of the country show that a finely powdered crude arsenious oxide obtained from a Montana copper smelter is a satisfactory substitute for Paris green for use in baits for grasshoppers and cutworms. This arsenical can be obtained commercially at one-seventh the cost of Paris green.

BIBLIOGRAPHY

- CROSEY, C. R., and LEONARD, M. D.—*Manual of Vegetable-Garden Insects*. New York, Macmillan, 1918.)
DADANT.—*Langstroth on the Hive and Honeybee*. (Hamilton, Ill., Dadant & Sons, 1919.)

- LLOYD, L.—*Lice and their Menace to Man*. (London, Henry Frowde and Hodder & Stoughton, 1919.)
LOCHHEAD, W.—*Class Book of Economic Entomology, with Special Reference to the Economic Insects of the Northern United States and Canada*. (Philadelphia, Blakiston, 1919.)
PELLETT, F. C.—*Practical Queen Rearing*. (Hamilton, Ill., *Am. Bee Jour.*, 1918.)
RAU, P. and N.—*Wasp Studies Afield*. (Princeton, Univ. Press, 1918.)

AGRICULTURAL LEGISLATION

H. L. KNIGHT

Federal Legislation.—The closing session of the Sixty-fifth Congress was practically devoid of agricultural legislation, even the annual Appropriation Act for the support of the U. S. Department of Agriculture failing of passage before the adjournment on March 4, 1919 (see I, *Congress*). Most of the pending measures were re-introduced in the special session of the Sixty-sixth Congress which convened in May, together with numerous additional projects. The most important piece of legislation to be completed by this Congress was the Appropriation Act, which became law on July 24. This measure was first presented to the White House on July 1, but it was vetoed by the President because of a clause which had been inserted repealing the so-called daylight-saving law. The veto was sustained and a new bill formulated, identical in terms except for the omission of the legislation regarding daylight saving and the inclusion of a clause amending the public-land laws to assist settlers driven from their holdings in 1919 by drought (see also IX, *Public Lands*).

The principal provisions of the Act are discussed elsewhere (see *Agriculture, supra*). Special mention may be made of amendments to three earlier laws embodied in it. Under one of these the Federal meat inspection was extended to equine meat and meat products (see *Veterinary Medicine, supra*). A second specifically applied the net-weight provision of the Food and Drugs Act to wrapped meats. The third amended the U. S. Warehouse Act by modifying certain requirements as to bonding and the issuance of negotiable receipts, with a view to securing the more general

utilization of the Act (see also XIII, *Banking and Currency*.)

Abandonment of daylight saving on Oct. 26, 1919, was eventually accomplished by the passage on Aug. 20 of a separate measure over the President's veto (see also I, *Congress*). Although opposition to the daylight-saving law was by no means restricted to farmers, they were as a rule vigorous advocates of its repeal, experience having shown that the advancing of clocks during the summer seriously handicapped many farm operations.

Considerable opposition was also manifested by farmers to the proposed National Soldier Settlement bill, favorably reported to the House on Aug. 1 by the Committee on Public Lands. This measure authorized an initial appropriation of \$500,000 to be used under the administration of the Secretary of the Interior for the reclamation or development of lands for subdivision into farms to be eventually acquired by former soldiers or sailors. It was the expectation that under this legislation lands in the various states would be acquired and improved at the public expense, and the fear of ultimate competition with existing farm enterprises, somewhat analogous to that which resulted so disastrously to eastern agriculture following the opening to settlement of the public lands after the Civil War, found expression through the agricultural press and otherwise. A measure with somewhat similar purposes was favorably reported on Oct. 6 by the Senate Committee on Agriculture and Forestry. This bill would establish a commission on rural and urban home settlement for the investigation of the various problems of this subject, including farm settlement. (See also IX, *Reclamation*.)

A bill amending the Federal Farm Loan Act was passed by the House, on Sept. 10; the amendments proposed were designed, for the most part, to simplify and expedite the procedure of obtaining farm loans (see also XIII, *Banking and Currency*). Another important group of bills under consideration dealt with the distribution and marketing of farm products, with a primary purpose to reduce

the high cost of living. One of these, approved by the President on Oct. 22, extended the Food and Fuel Control Act to containers in which foods, feeds, and fertilizers are sold, and provided a penalty for individual profiteering through hoarding, willful destruction of necessities, or conspiracy in restricting their production or distribution. Farmers and their associations, however, were specifically exempted from these provisions of the Act as regards farm products raised by them.

The cold storage of foods would be regulated by a bill passed by the House, on Sept. 30. This law would be under the administration of the Department of Agriculture; in general it would limit the cold storage of food in interstate commerce to 12 months. A system of Federal licensing for stockyards and other agencies for the distribution of live stock and its products was proposed in the so-called Kenyon and Kendrick bills pending before the Senate Committee on Agriculture and Forestry. Extended hearings were held on these measures, which were regarded as vitally affecting live-stock production. A bill to prescribe standard weights of packages for flours, hominy, grits, corn-meal, and all commercial feeding stuffs was passed by the House on Dec. 8. Bills were also pending in the House for the establishment of Federal standards for the classification of fertilizers, commercial foodstuffs, and fruits and vegetables, and the inspection of these commodities by the Department of Agriculture.

State Legislation: Soldier Settlement Acts.—Legislation was adopted in Arizona, Colorado, Idaho, Maine, Missouri, Montana, New Mexico, North Carolina, Oregon, South Dakota, Tennessee, Utah, Vermont, Washington, and Wyoming to assist returning soldiers and sailors to reclaim and develop farm lands, and in California the act of 1918 (*A. Y. B.*, 1918, p. 317) was extensively amended. In most of these states provision was made for coöperation with the Federal Government in case of Federal legislation. Appropriations were made in several cases to institute the work, Washington allotting \$150,-

000; Wyoming, \$200,000; and South Dakota and Utah, \$1,000,000 each.

Agricultural Credit, Insurance, and Cooperation.—Kansas submitted an amendment to permit state aid in the purchase of farm homes, special preference being given to former service men. A comprehensive act was passed in Hawaii providing territorial aid for both real and personal farm credit. Oklahoma appropriated \$250,000 for second mortgages on certain purchases of farm homes. The Farm Lands Loan Act of Maine was amended. The hail-insurance laws of Montana and Nebraska were amended. A system of state hail insurance was provided in South Dakota, and of growing grain and cotton in Oklahoma. In South Carolina state insurance of cotton warehouses and their contents was instituted. Coöperative agricultural associations were regulated in Missouri and Pennsylvania.

Marketing Farm Products.—A state cotton-warehouse system was established in North Carolina with provision for leasing warehouses and closely regulating operations. Idaho, Montana, and Oklahoma required the licensing of warehouses, and Oregon and Washington amended their previous laws. In California all food warehouses were declared public utilities and regulated accordingly (see also X, *Public Services*). Colorado authorized municipal abattoirs and cold-storage plants. A State Bureau of Marketing was established in Missouri, and additional authority given that in Pennsylvania. A State Trade Commission was organized in Montana to include markets, foodstuffs, farm machinery, etc. The licensing of all commission dealers was required in Illinois, of live-stock commission dealers in Texas, egg dealers in Illinois, Iowa, Missouri, and South Dakota, and grain threshers in North Carolina. New Hampshire and New York amended their laws as to milk dealers. Standard grades and packages for farm products were promulgated in California, North Carolina, and Pennsylvania, for apples in Connecticut and New York, cranberries in Washington, grain grading in Colorado and Montana, and potatoes in Nebraska. Certification for seed potatoes was authorized in Minnesota.

Stimulating Animal Industry.—A State Board of Sheep Commissioners was established in Nevada to promote sheep raising and combat diseases. Illinois, New York, North Carolina, Tennessee, and Wisconsin adopted more stringent dog laws in the interest of sheep raising. In Wyoming abandonment of sheep by a herder on an open range was made a misdemeanor.

A compulsory stallion-registration law was adopted in New Mexico, with optional provision for other live stock, and the Colorado law was amended. The laws of Montana and Nevada as to the running of stock on the open range were amended. In New Hampshire pure-bred registered sires of all classes of domestic animals were exempted from taxation. The registration of bee owners was authorized in Connecticut.

There was a general strengthening of laws to combat animal diseases. Action was taken as to diseases in general in Alaska, Connecticut, Idaho, Iowa, Missouri, and North Carolina; against the cattle tick in Alabama; and against tuberculosis, usually to permit increased coöperation with the U. S. Department of Agriculture, in Connecticut, Hawaii, Illinois, Indiana, Kansas, New Hampshire, New York, Oklahoma, Oregon, and West Virginia.

Combating Plant Diseases and Pests.—The inspection and quarantine laws regarding plant diseases and insect pests were amended in Michigan, Oregon, and Washington, and new laws were enacted in Nebraska and New Mexico. With a view to combating black rust of cereals the eradication of the common barberry was required in Michigan, Montana, Nebraska, and South Dakota.

Inspection and Other Regulatory Laws.—New codes relating to the inspection of dairies, creameries, Babcock apparatus, dairy by-products, etc., were adopted in Arizona, California, Colorado, Iowa, Maine, Michigan, Missouri, Montana, Oklahoma, Pennsylvania, Tennessee, and Washington. The manufacture and sale of hog-cholera serum was regulated in North Carolina. Apiary inspection was instituted in Utah and Washington, and the law was modified in Michigan.

New fertilizer laws were adopted in Connecticut, Nebraska, and South Dakota, and amendments in Maine, New Jersey, New York, North Carolina, and South Carolina. In North Carolina standards for lime and marl were established, and the State was directed to furnish this product to farmers at reasonable cost, using convict labor if necessary. County courts in Oregon were authorized to obtain lime from the state plant to sell to farmers at cost.

California, Minnesota, Utah, Washington, and West Virginia adopted new feeding-stuff inspection laws, and there were amendments in Alabama and New Jersey. New Jersey also undertook the inspection of soil legume inoculants. New seed-inspection laws or amendments were formulated in Illinois, Maine, Missouri, New Mexico, New York, Ohio, Oklahoma, Utah, Washington, and West Virginia. In Michigan the making of false claims of superiority of seeds was prohibited, and in Oklahoma the seller of defective seeds was made liable for damages.

Insecticide and fungicide inspec-

tion was begun in Tennessee and Utah, and the Washington law was amended. In Connecticut the licensing of "tree doctors" operating outside their own towns was required. Arkansas required the licensing and bonding of dealers in nursery stock, and Massachusetts amended its inspection laws.

Agricultural Education.—Alabama provided state aid to construct or repair rural school buildings. North Carolina and Oklahoma prescribed standard series of textbooks in agriculture and home economics, and the former also required the examination of future teachers in these subjects.

State Departments of Agriculture.—A noteworthy tendency was toward the centralization of the states' administrative and regulatory functions in departments of agriculture. California, Idaho, Massachusetts, and Minnesota established or reorganized such departments, and Indiana took somewhat comparable action in its Department of Conservation. Oklahoma authorized a State Farm and Industrial Council for the federation of its various county and state-wide agricultural organizations.

HORTICULTURE

E. J. GLASSON

Crop Conditions.—The fruit crop as a whole in 1919 compared favorably with that of the preceding year, whereas vegetable production was reduced in both acreage and total yield. Exceptions to this rule were the short general apple crop and larger plantings of sweet potatoes. Seasonal conditions were generally unfavorable for a large pack of canned vegetables. On the other hand, the canned and dried-fruit output in California gave promise of being very large. The upward trend in prices continued regardless of individual crop yields, and transportation facilities in the large shipping centers were inadequate for prompt distribution. In Canada a light fruit crop was reported for Ontario with high prices. The Nova Scotia apple crop approximated 1,300,000 bbl., a marked increase over the 450,000 bbl. produced in 1918.

The commercial apple crop was estimated at about 26,174,000 bbl.,

as compared with 24,743,000 bbl. in 1918. Although the citrus crop was somewhat reduced by the cold weather of early January, California shipped about 49,300 cars of citrus fruits in the 1918-19 season, as compared with 23,500 cars in the 1917-18 season. Increased shipments of fresh peaches, plums, and grapes brought the total deciduous fruit shipments from the state to 30,000 cars, as compared with 27,500 cars in 1918. In view of the enactment of national prohibition, thousands of cars of wine grapes are now entering the fresh-fruit and raisin markets. California's walnut harvest was estimated at 48,000,000 lb., the largest in the history of the industry. Florida shipped about 22,500 cars of citrus fruits for the 1918-19 season, as compared with 14,500 cars for the 1917-18 season.

The total production of apples in the United States was 147,457,000 bush., of peaches, 51,340,000

bush., and of pears, 13,498,000 bush., as compared with 169,911,000 bush. of apples, 34,133,000 bush. of peaches, and 12,933,000 bush. of pears, in 1918. The white-potato crop was estimated at 357,901,000 bush., and the sweet-potato crop at 103,579,000 bush., as compared with 411,860,000 bush. of white potatoes and 86,334,000 bush. of sweet potatoes in 1918. The bean crop was about 11,488,000 bush., as compared with 17,397,000 bush. in 1918. The production of onions and cabbage was also lower than in 1918. The canned pineapple pack of the Hawaiian Islands in 1918 was 3,847,315 cases, with prospects for a considerable increase in production in 1919.

Foreign Trade.—In the fiscal year ended June 30, 1919, the United States exported fruits, vegetables, and nuts worth \$124,806,607, as compared with \$61,445,379 in 1918. We imported \$102,019,669 worth, as compared with \$107,432,859 in 1918. The export figures are: fruits, \$69,144,187; vegetables, \$53,513,794; nuts, \$2,148,607. The import figures are: fruits, \$25,816,703; vegetables, \$33,687,305; nuts, \$42,515,661. That the value of the export trade was more than double that of any previous year was due both to increased shipments and to the prevailing high prices. Exports of dried and canned fruits, potatoes, beans, and peas were large. The decline in total value of imports is entirely chargeable to decreased imports of oil-bearing nuts. To offset this decline the United States imported \$43,496,543 worth of cocoanut butter in 1919, as compared with \$30,919,783 worth in 1918. Imports of peanut oil also increased from \$7,311,824 worth in 1918 to \$11,495,849 worth in 1919. Exports of nursery stock increased from \$260,763 in 1918 to \$333,356 in 1919. Imports of nursery stock decreased from \$3,327,697 in 1918 to \$2,363,553 in 1919.

The American Fruit Growers, Inc.—The most important happening in the American fruit world during 1919 was the incorporation, under a Delaware charter dated July 7, of the American Fruit Growers. With an authorized capital stock of \$50,000,000, this syndicate plans to do a

nation-wide business in growing and distributing fruits and vegetables. The corporation has already acquired several million dollars worth of successful orchard properties in the leading citrus and deciduous fruit regions of the country, and has placed them in charge of successful growers, frequently the former owners. Trained men have been sought out to handle every phase of the enterprise. The American Fruit Growers also plans to enter into the canning and dehydrating business and to own, as far as possible, plants for furnishing supplies such as fertilizers, crate material, etc. The feasibility of such a large undertaking and its influence on the fruit and vegetable industries, if successful, have been subjects of much speculation. As to its effect upon the general public, the management of the corporation has announced that "it will tend to furnish fruits and vegetables to consumers at lower prices by elimination of unnecessary handling profits and by better methods of production, picking, packing, and shipping." An investigation of the purposes and plans of the American Fruit Growers has appeared in two articles by W. H. Deans in *Country Gentleman* for Sept. 27 and Oct. 4, 1919.

Electrifying Plants.—During the three seasons 1916–1918 experiments were conducted at the Missouri Botanical Garden with tomatoes, string beans, sweet corn, and salvia to determine the value of electricity in stimulating plant growth. The de Graffigny "electrifier," a French apparatus, was used in the experiments. As compared with untreated plants, the electrified plants showed considerable increase in vegetative and reproductive growth, and the date of maturity was hastened. The investigators point out, however, that before electricity can come into practical use for stimulating plant growth, much has to be learned relative to the required quantity and intensity of the stimulus and the proper time of application during the life of the plant.

New Fruits and Plants.—Recent breeding and selection work of the U. S. Department of Agriculture has resulted in a number of ever-bearing

strawberries; some strawberries, producing large, luscious fruit, that are hardy in the interior of Alaska with no protection other than that afforded by the snow; small-seeded blueberries of good flavor, three-fourths of an inch or more in diameter; and a hardy pillar or low-climbing rose, bearing pure white blossoms with prominent yellow stamens. Experiments conducted at the Department's experiment station in Porto Rico have resulted in the production of vanilla beans of good quality and on a sufficiently large scale to make the vanilla industry appear promising. As a result of the Department's bud-selection work with citrus fruits in California most of the new grapefruit groves have been planted with trees propagated from selected stock. A recent examination of a 40-acre Lisbon lemon orchard near Porterville, Cal., set out in 1907, with trees all grown from buds of a very productive and valuable tree, failed to reveal a single off-strain tree.

The breeding of hardy fruits for the northern plains region continues to yield promising results. The Iowa Experiment Station has secured several seedling apples from a cross of the Salome and Jonathan varieties. The keeping quality, attractive color, and high quality of these seedlings indicate that they will be of considerable value in the future apple or-

chards of the northern plains region. The plantation of G. C. Patten of Charles City, Iowa, where several thousand seedlings of apples, pears, and other kinds of fruit, representing 40 years of effort by Mr. Patten, are located, has been purchased and added to the station material. Among recent introductions announced by the South Dakota state station are the Tecumseh, a fine extra-large plum of Shiro X Surprise pedigree, several seedling apples resistant to blight, and a hybrid pear with blight-resistant qualities. The Minnesota State Fruit-Breeding Farm, sent out for testing during the year 1919 specimens of several plums, a seedling blackberry, and an ornamental cherry.

BIBLIOGRAPHY

- FULLERTON, E. L.—*The Book of the Home Garden*. (New York and London, Appleton, 1919.)—Treats of vegetable, fruit, and flower growing.
- GARDNER, F. D., et al.—*Fruits, Vegetables, and Flowers*. (Philadelphia, Winston, 1919.)—A cultural reference work prepared by a corps of specialists.
- GOULD, H. P.—*Peach Growing*. (New York, Macmillan, 1918.)—A comprehensive treatise.
- HEDRICK, U. P.—*Manual of American Grape Growing*. (New York, Macmillan, 1919.)—A practical manual for commercial and amateur growers.
- WILDER, L. B.—*Color in my Garden*. (Garden City, N. Y., Doubleday, Page, 1918.)—Presents suggestions relative to selection and arrangement of plants, with special reference to harmony in color.

FORESTRY

E. J. GLASSON

A National Policy of Forestry.—The experience of the war called sharp attention to the condition of our remaining timber supplies. According to the U. S. Forester, Henry S. Graves, if the war emergency had come 15 years from now we would have had very great embarrassment in obtaining even the lumber needed for general construction, except at great sacrifice in time, cost, and crowding of the railroads. Most of the lumber would have come from the Pacific Coast, for the leaders of the southern pine manufacturers state that the bulk of the original supplies of yellow pine in the South

will be exhausted in 10 years, and that within the next five to seven years more than 3,000 manufacturing plants will go out of existence. The Lake states, which a few years ago were the greatest producers of timber, are to-day paying a freight bill of about \$6,000,000 a year to bring in lumber and other forest products from outside sources. In New England it is estimated that the annual growth of forest material that will be suitable for lumber or other higher uses is less than half of what is being cut. New mill development for supplying this country with wood pulp and paper has been almost entirely trans-

ferred to Canada, and industries using oak, hickory, cherry, yellow poplar, walnut, and ash are facing an acute situation due to the uncertainty with regard to future supplies of timber.

It is clear that only temporary relief can be expected from the existing national forests, for private owners hold four-fifths of the standing timber of the country, and it is the best and most accessible timber. Ninety-seven per cent. of the timber and other wood products used in the United States is obtained from these private forests. The lands have been purchased to exploit the timber and not to grow a new crop of trees, for our forest taxation laws have not encouraged private forestry. Even privately organized fire protection is confined to the protection of merchantable timber on relatively few large holdings. Over a great part of the country there is practically no effort to keep out fires from timber, cut-over lands, and young tree growth.

To meet this situation a great movement was started in 1919 aiming to bring about permanent forest production on all lands of the country that are best suited for the growing of trees. The new movement is headed by the U. S. Forester and is fostered by the leading lumber interests, as well as many state authorities and various forest organizations and institutions throughout the country. It is proposed to secure these objectives in two ways: first, by large extension of the public forests, including those owned by the Government, states, and municipalities; and second, by bringing about timber growing on private lands through public direction and coöperation. Action to further this programme of conservation is necessary by both the Federal Government and the states.

At the American Lumber Congress held in Chicago in April, 1916, the U. S. Forester was requested to draw up a policy of forestry for the nation. Complying with this request, he presented for public discussion toward the close of 1919 a broad policy which provides, in brief, for the coöperation of Federal, state, municipal, and pri-

vate agencies in seeking the protection and beneficial utilization of our present forest resources, the renewal after cutting of forests on lands not needed for agriculture and settlement, the stability of forest industries and of satisfactory conditions for forest workers, and the restoration of forest growth on suitable lands now allowed to lie unproductive and idle.

Forest Fires.—From the standpoint of timber and young-growth destruction, the 1919 fire season was the most disastrous one ever recorded, although the loss of life was relatively small. The fire hazard was general throughout the northern and western lumber regions and in adjacent sections of Canada. It continued from the latter part of June to the latter part of September. During this period the Federal Government expended approximately \$3,000,000 in fire control, chiefly in Montana and Idaho, where as many as 5,000 men were employed for weeks. Over 1,000,000 acres of national-forest land and 400,000 acres of private land were burned over in these states. Over 500,000 acres were burned over in northern Michigan, and in California, 200,000 acres of watershed land in the vicinity of Los Angeles. A serious fire situation in the woodlands of the Northeast was brought to a close by timely fall rains.

A coöperative agreement between the War Department and the Forest Service provided for airplane patrol in national forests to give early warning of fires. Patrol work was started on June 1 in California. The wireless telephone is also to be tried out in the national forests. Equipment is to be installed on Mt. Hood, at an elevation of about 13,000 ft., and at the nearest forest-ranger station, about 12 miles away. Two other sets are to be placed in the Clearwater forest region of Idaho, which is heavy wilderness country. All the wireless stations will be established at lookout points and will give warnings of fires, supplementing the regular fire-patrol facilities of the Forest Service.

During the calendar year 1918 there were 5,573 fires in the national

forests, nearly half of which were caused by various forms of carelessness on the part of settlers, campers, and other users of the forests. There were 257 incendiary fires, which occurred for the most part in Oregon, California, and Arkansas. Over 695,000 acres of national-forest lands were burned over, resulting in a loss in timber, forage, and young growth valued at \$688,000. In addition, these fires entailed extra fire-fighting expenditures by the Government of \$714,000.

Forest Legislation.—The development of the national-forest road systems was given great impetus by the terms of the Post Office Appropriation Act, which makes available \$9,000,000 for roads and trails within or partly within the forests. The Secretary of Agriculture is empowered to build and maintain, without the cooperation of local officials, any road or trail within a national forest that he finds necessary for the proper administration, protection, and improvement of such forest, or which in his opinion is of national importance. The Agricultural Appropriation Act provided \$600,000 for the purchase of additional watershed land under the Weeks law. In Alabama all state lands were declared forest reserves and game refuges. In Indiana certain cities were permitted to establish and maintain memorial forests. Montana established a closed season for burning forest refuse without a permit. The new fire laws of Oregon and California provide that citizens may be fined for refusing to help fight forest fires. Minnesota has established a Board of Control empowered to issue bonds to provide adequate funds to meet forest-fire emergencies.

National Forests.—Statistics corrected to June 30, 1919, show a total of 151 national forests in the United States, with a net area, including Alaska and Porto Rico, of 153,933,460 acres. In addition, 20,327,933 acres of other lands are situated within national-forest boundaries. National monuments for the preservation of objects of historic or scientific interest now comprise a total of 1,132,509 acres. Game preserves now amount to 886,208 acres. The acre-

age now acquired and approved for purchase in the White Mountain and Southern Appalachian regions aggregates 1,744,159 acres.

During the year considerable land was eliminated from certain of the national forests as having agricultural possibilities. Among these eliminations are 307,800 acres from the Chugach National Forest in Alaska and 104,713 acres from the Inyo Forest in California and Nevada. The Forest Service made special efforts to bring the wonderful vacational resources of the national forests to a wider attention of the general public and to induce many more hundreds of thousands each year to visit these natural playgrounds, issuing during the year a series of descriptive pamphlets describing the recreational features of several of these forests.

During the fiscal year ended June 30, 1919, the national forests' receipts from all sources totaled over \$4,358,414, an increase of about \$783,484 over 1918. Timber sales yielded over \$1,540,099, and livestock grazing over \$2,609,169. Slightly less than \$72,322 was received from water-power development permits.

War Achievement of American Forest Engineers.—On Nov. 25, 1917, the first board was cut in France by American forestry troops (A. Y. B., 1918, p. 502). When the armistice was signed on Nov. 11, 1918, the forest engineers were operating 81 American sawmills and producing 2,000,000 ft. of lumber and round products every working day. Up to Dec. 1, 1918, they had cut 272,500,000 ft. of lumber, 2,728,000 railroad ties, together with 38,000 pieces of piling, 2,739,000 poles of all sizes, and 892,000 steres of fuel wood.

BIBLIOGRAPHY

- RECKNAGEL, A. B., and BENTLEY, J., Jr. —*Forest Management*. (New York, Wiley, 1919.)—A textbook and treatise.
- U. S. FOREST SERVICE.—A series of documents describing the recreational features and facilities of several national forests. (Washington, Govt. Printing Office, 1919.)
- YARD, R. S.—*The Book of the National Parks*.—(New York, Scribner, 1919.)—Descriptive accounts of the American national parks.

FISHERIES

HUGH M. SMITH

General Conditions.—The American fisheries have continued to receive an extraordinary amount of attention as an undeveloped source of human food and of material required in the arts and industries. The Government through the Bureau of Fisheries has pushed the campaign for increased production and consumption of certain aquatic foods to offset the high cost of other animal foods, but since July 1, 1919, it has been obliged to curtail these activities owing to the failure of Congress to make any provision therefor. Vessels and men released from military service have returned to the fisheries, and new craft have entered the industry. Prices of all kinds of staple fishery products have been abnormally high, and production has thus been stimulated. The estimated value of the fisheries of the United States for 1919 is \$125,000,000.

New England Vessel Fisheries.—During the calendar year 1918 the New England vessel fisheries considered as a whole reached their highest development. The headquarters of the fleet are Boston, a strictly fresh-fish market; Gloucester, both a fresh-fish and a salt-fish market; and Portland, almost exclusively a fresh-fish market. The fleet comprised 500 vessels, of which five were engaged in the bank fishery for salt fish, 84 in the mackerel fishery, 102 in the bank fishery for fresh fish, 37 in the sword-fish fishery, 17 in the herring fishery, and 255 vessels in various shore fisheries.

The number of fares of fish landed was 2,803 at Boston, 3,413 at Gloucester, and 2,474 at Portland; total, 8,690, of which there were from Georges Bank, 771; South Channel and Nantucket Shoals, 555; Browns Bank, 130; Grand Bank, 22; Western Bank, 261; Querean Bank, 140; and miscellaneous New England shore grounds, 6,811. The landings aggregated 199,898,404 lb. and sold for \$10,312,923, divided as follows: Boston, 108,678,078 lb., valued at \$6,538,873; Gloucester, 74,039,333 lb., valued at \$3,057,807; and Portland, 17,180,993 lb., valued at \$716,243.

Under a reciprocal arrangement with the Canadian Government, 60 fares of fish, in addition to the foregoing, were landed at these ports by 21 Canadian vessels, 27 going to Boston, 32 to Portland, and one to Gloucester, these Canadian fares aggregating 5,602,749 lb. of fish, valued at \$218,625.

American vessels brought from the banks lying off the Canadian and Newfoundland coasts 60,588,995 lb., valued at \$2,891,073, and from the grounds off the New England coast they landed 139,309,409 lb., valued at \$7,421,850.

Cod maintains its supremacy among the food fishes of New England. The landings in 1918, in fresh and salted conditions, aggregated 71,824,427 lb., valued at \$3,617,205. Haddock ranked second, the catch being 66,671,541 lb., valued at \$3,199,276. Other important fishes in the order of value are mackerel, 10,158,467 lb., \$1,188,924; pollock, 26,560,620 lb., \$962,085; herring, 14,996,962 lb., \$460,682; and hake, 5,280,829 lb., \$273,085.

Hudson River Shad Fishery.—The Hudson was formerly one of the great shad streams of the country, but overfishing and possibly other influences so reduced the abundance that commercial extinction of the shad was imminent. In 1901 over 1,000,000 shad were taken in this river, whereas in 1916, when the culmination of the decline appears to have been reached, less than 9,300 fish were caught. Recently the New York Conservation Commission, in coöperation with fishermen and aided by new legislation, has been improving conditions for shad, by preventing fishing on favorite spawning grounds, by requiring stake nets to be lifted from Friday to Monday, etc., with the result that the trend of the fishery has been upward, and the catch in 1919 was the best in many years. A canvass by the Bureau of Fisheries for 1919 showed 299 persons engaged in the fishery with 373 gill nets, 12 seines, and 11 scap nets, and a total investment of \$31,611. The fish taken numbered 90,391, weighed 374,974

lb., and sold for \$83,724, as against 12,015 fish in 1917 and 67,403 fish in 1918.

Fisheries of the Great Lakes.—A canvass of the fisheries of the Great Lakes conducted by the Bureau of Fisheries in 1918 for the preceding year affords the only complete statistics for this region since 1908. These are the most extensive lake fisheries in the world, and the fish supply is being maintained remarkably well considering the divided jurisdiction and diverse protective laws. Artificial propagation by Federal and state Governments and by Canadian Dominion and provincial Governments is generally regarded as largely responsible for the present satisfactory situation. The fisheries, combined with those of Lake of the Woods and Rainy Lake and including the various connecting rivers, gave employment to 9,416 persons, represented an investment of \$10,732,879, and yielded 105,926,392 lb. of fish valued at \$6,416,477. The fishes taken in largest quantities are the lake herrings or ciscoes, belonging to many species; the catch was 53,813,473 lb., worth \$2,622,135. Next in importance is the lake trout or mackinaw trout, amounting to 13,346,769 lb., valued at \$1,286,913. The production of whitefish was 6,288,308 lb., valued at \$731,519. Other important lake fishes are Asiatic carp, pike perch, sucker, and yellow perch. The output of the fisheries of the Great Lakes was as follows in 1918:

Lake	Pounds	Value
Superior	15,447,432	\$726,674
Michigan	35,460,628	2,270,859
Huron	13,496,537	869,330
Erie	38,300,238	2,330,249
Ontario	1,054,388	100,857
St. Clair ¹	133,330	11,852
Total	103,892,553	6,309,821

¹ Including St. Clair and Detroit Rivers.

In all the lakes the value of the products was greater than ever before, exceeding by \$2,529,969 that in 1908. The actual weight of catch, however, was about 2,870,000 lb. less than in 1908.

Pacific Salmon Industry.—The Pacific salmon comprise five species of

a genus peculiar to the Pacific Ocean and one species similar to the Atlantic salmon. They support the most extensive branch of the American fisheries, which in 1918 was more valuable than ever before. Large quantities of salmon are marketed fresh, frozen, salted and smoked, but most of the catch is canned. In 1918 canneries were operated as follows: 135 in Alaska, 40 on Puget Sound, 12 on Washington coast, 20 on Columbia River, 17 on Oregon coast, six in California, total 230. The pack in cases of 48 one-pound cans was: Alaska, 6,605,835 cases; Puget Sound, 624,198; Washington coast, 65,402; Columbia River, 591,381; Oregon coast, 92,457; California, 25,136; total, 8,004,409 cases, valued at \$63,331,189. The gross weight of the salmon used in canning was 600,330,675 lb. The sockeye, chum, and humpback salmon predominate in Alaska and on Puget Sound; the chinook in the Columbia River and California; and the chinook and coho on the Washington and Oregon coasts. The pack of each species in cases was: chinook, 581,645; sockeye, 2,626,429; humpback, 2,446,242; chum, 1,675,517; Coho, 649,406; steelhead, 25,170. The gross weight of salmon prepared and preserved otherwise than by canning was 35,069,788 lb., valued at \$3,507,142.

Alaskan Fisheries.—The fisheries of Alaska are the only fisheries under the jurisdiction of the Federal Government. A new record was established in 1918, when every branch advanced over 1917, which had previously shown the highest development. The total investment was \$73,750,789, an increase of \$18,813,240 over 1917. The number of persons engaged was 31,213, an increase of 1,722. The total value of products was \$59,144,859, an increase of \$7,677,879. The chief gain was in the salmon-canning industry, which employed 86 per cent. of the invested capital and produced 86 per cent. of the value of all fishery products. Other important products were pickled, mild-cured, and fresh salmon, \$2,074,408; herring, \$1,819,538; halibut, \$1,667,686; cod, \$957,184; and whale, \$1,350,971; all being increases over 1917. The pack of salmon

XVI. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

on in 1919 showed considerable decline, and was not over 5,000,000 cases.

Alaska Fur-Seal Industry.—In 1919 the fur-seal herd resorting to the Pribilof Islands numbered 524,260 animals of all ages, in addition to 26,390 surplus animals killed for their pelts since the date of the preceding census. There were 157,172 new-born pups and the same number of breeding cows. The herd shows an average annual increase of about 10 per cent., which is very satisfactory. In the killing season of 1919 special effort was made to reduce the surplus old males that had accumulated under five-year close season ended Aug. 24, 1917. During the active sealing season of 1919, 25,855 seals were killed. All skins are sent to St. Louis for sale at public auction for the account of the Governments of United States, Great Britain, and Japan. Each of the two foreign nations is entitled to 15 per cent. of the annual proceeds, in accordance with the terms of the treaty of July 7, 1911. Good prices have been realized from the sale of dressed, dyed, and machined sealskins at St. Louis, the average price at the auction on Sept. 10, 1919, being \$91.35 per skin. A by-products plant was established at the Pribilof Islands in 1918 for the utilization of seal carcasses heretofore wasted, except such as were used for food for the natives and for the blue-fox herds maintained by the Government. The net income to the United States Gov-

ernment from the sale of seal-island products taken in 1918 will be about \$2,500,000.

Fish Culture.—For the year ending June 30, 1919, the hatcheries of the U. S. Bureau of Fisheries had a larger output of food and game fishes than ever before, notwithstanding serious drawbacks resulting from the scarcity of labor and high costs of supplies. The 70 main and auxiliary hatcheries were located in 33 states and Alaska, and the hatchery product was distributed in every state and Alaska. The principal species propagated were cod, haddock, pollock, and flounder on the northeast coast; salmon, shad, yellow perch, and striped bass on the streams of the Atlantic seaboard; lake trout, whitefish, cisco, and pike perch on the Great Lakes; five species of salmon on the Pacific rivers; and rainbow trout, brook trout, blackspotted trout, landlocked salmon, black bass, carp, and buffalofish on the interior waters. In addition to the fishes actually propagated, large numbers that would otherwise have been lost were salvaged from overflowed waters throughout the Mississippi Valley. The total output, including over 1,000 million fertilized eggs consigned chiefly to state hatcheries for final incubation, was about 5,877,000,000. The cost of production and distribution of this output, including salaries of all fish-cultural employees engaged in the work, was \$107 per million eggs.

STATISTICS OF AGRICULTURE

WORLD'S PRODUCTION OF PRINCIPAL CROPS, 1909-1915

(Yearbook of the Department of Agriculture)

	1909	1914	1915	1916
Barley (bush.)	1,458,263,000	1,463,289,000	1,522,732,000	1,529,031,000
Corn (bush.)	3,563,226,000	3,777,913,000	4,201,589,000	3,642,103,000
Cotton (bales)	20,679,334	23,804,422	17,659,126	.....
Flaxseed (bush.)	100,820,000	94,559,000	103,287,000	.....
Hops (lb.)	128,173,000	1224,179,000	163,084,410	.....
Oats (bush.)	4,312,882,000	4,034,857,000	4,362,713,000	4,138,050,000
Potatoes (bush.)	5,595,567,000	5,106,291,000	5,361,898,000	.....
Rice (lb.)	127,700,000,000	102,986,000,000	115,193,190,000	.....
Rye (bush.)	1,747,123,000	1,596,882,000	1,577,490,000	.....
Sugar (short tons)	16,414,000	20,073,783	21,895,551	21,628,851
Tobacco (lb.)	2,742,500,000	2,254,086,747	2,153,395,336	.....
Wheat (bush.)	3,581,519,000	3,585,916,000	4,127,685,000	3,701,333,000

1 Bales 478 lb. net weight. 2 Incomplete.

XVI. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

WORLD'S PRODUCTION OF PRINCIPAL CROPS, BY COUNTRIES, 1909-1918

(Yearbook of the Department of Agriculture)

(000 omitted)

	1909 Production	1914 Production	1916		1917		1918	
			Acres	Production	Acres	Production	Acres	Production
BARLEY (bush.) :								
Algeria	31,511	35,785	3,009	35,969	2,839	28,529	2,794	58,422
Austria-Hungary	153,582	128,663	4,829	90,857				
Canada	55,398	36,201	1,803	42,770	2,392	55,058	3,154	77,290
France	46,144	42,719	1,538	38,268	1,789	39,557		
Germany	160,551	144,125	4,002	114,007	2	2		
Japan	87,219	85,775	3,075	89,336	2,888	88,896	2,721	76,050
Russia (European)	464,734	383,572	22,631	350,231				
Spain	81,579	72,272	3,886	86,863	4,086	76,747	4,209	90,498
United Kingdom	71,116	66,637	1,652	54,567	1,796	59,290		65,029
United States	173,321	194,953	7,757	182,309	8,933	241,759	9,740	256,225
CORN (bush.) :								
Argentina	177,155	263,135	9,928	161,133	8,969	58,839	8,715	170,660
Austria-Hungary	210,241	215,079		220,600				
Bulgaria	20,472	30,901	2	735,000				
Canada	19,263	13,924	173	6,282	234	7,763	250	6,947
Egypt	65,000	78,253	1,850	68,362	1,685	63,757		
France	26,075	22,530	812	717,104	738	16,215	841	
Italy	99,289	104,966	3,918	81,547	3,572	75,425	3,459	
Mexico	170,000	78,443	2	2				
Roumania	70,138	102,552	5,056	786,412	1,077			
Russia	39,598	80,911	2,865	62,207				
Serbia	34,453	20,000	2	712,000	2	2		
South Africa	20,000	330,830	2,740	26,304	3,150	36,516	3,300	29,708
Spain	26,433	30,325	1,154	28,642	1,175	29,369	1,169	24,141
United States	2,522,190	2,672,804	105,296	2,566,927	116,739	3,065,233	104,467	2,502,665
COTTON (bales) :								
Brazil	265	385	2	420				
French Indo-China	1,200	2	2	2				
Egypt	1,045	1,425	1,719	1,062	1,741	1,347		
India	4,123	4,239	21,745	3,767	24,781	3,377		
Mexico	200							
Peru	44	4110	4137	4113				
Russia (Asiatic)	418	1,309	2,133					
United States	10,005	16,135	34,985	11,450	33,841	11,302	36,008	12,041
Hops (lb.) :								
Australasia	2,206	1,667	1	2,110	1	1,752		
Austria-Hungary	20,577	1						
Belgium	3,861	7,560	2	2				
France	5,029	7,034	5	4,957	4	3,936		
Germany	13,356	51,227	2	2				
Russia	8,267	14,084	2	2				
United Kingdom	24,022	56,813	31	34,479	16	24,720		
United States	50,697	43,415	44	50,595	30	29,388	26	21,481
OATS (bush.) :								
Argentina	31,984	50,981	2,565	75,280	2,525	31,781	3,200	75,783
Austria-Hungary	251,277	225,651	5,882	6147,550				
Canada	353,466	313,078	10,996	410,211	13,313	403,010	14,790	380,274
Denmark	42,170	38,653	1,042	51,656	981	37,653	981	
France	331,183	274,458	7,777	277,179	7,706	237,426	7,227	237,426
Germany	628,712	622,674	711,404	7412,400	2	2		
Russia	1,145,387	5722,488	34,706	843,249				
Sweden	69,292	52,557	1,954	93,089	1,929	70,754	1,785	64,684
United Kingdom	184,370	180,241	4,147	176,049	4,764	214,727		309,564
United States	1,007,129	1,141,060	41,527	1,251,837	43,553	1,592,740	44,349	1,538,124
POTATOES (bush.) :								
Austria-Hungary	682,927							
Belgium	90,358	2	2	2				
Canada	99,085	85,672	473	63,297	657	79,892		
France	613,041	440,652	3,222	335,507	3,482	401,336		
Italy	63,273	61,104	729	54,277	732	48,112		
Netherlands	97,275	120,780	413	88,490	419	89,858		
Russia	1,204,528	5909,486		5,879		662,169		
Spain	98,860	76,657	2	2	839	113,477		
Germany	1,716,143	1,675,370	2	882,000				
Sweden	61,981	48,817	377	54,972	397	83,700		
United Kingdom	256,752	279,121	1,144	204,172	1,365	321,209		
United States	389,195	409,921	3,565	286,953	4,374	438,618	4,295	411,860

1 Area refers to 1910. 2 No official statistics. 3 Census figures of 1911. 4 Exports, 1912. 5 Omitting Poland. 6 Figures of 1914. 7 Figures of 1915.

XVI. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

WORLD'S PRODUCTION OF PRINCIPAL CROPS, BY COUNTRIES—Continued (000 omitted)

	1909 Production	1914 Production	1916		1917		1918	
			Acres	Production	Acres	Production	Acres	Production
RICE (lb.):								
Egypt	653,458	81,229	150	236,528	273	487,163	.....	.....
Formosa	1,446,000	1,447,709	1,166	1,460,563	.....	.....	.....	.....
India	86,712,000	61,022,080	880,080	877,931,840	879,698	880,516,800	.....	.....
Italy	647,000	741,263	353	708,058	341	716,359	.....	.....
Japan	16,375,000	17,908,918	7,527	18,359,997	7,557	18,792,894	.....	.....
Java and Madura	7,566,000	7,826,026	7,521	4	.....	.....	.....	.....
Korea	3,200,000	3,678,878	4	3,936,361	.....	.....	.....	.....
Madagascar ²	953,000	.....	1,176	1,017,470	.....	.....	.....	.....
Philippines	1,018,000	1,403,516	2,819	1,234,332	.....	1,671,684	.....	.....
Siam	6,824,000	5,711,133	.....	.....	.....	.....	.....	.....
United States ..	702,709	656,917	869	1,135,028	981	964,972	11,119	38,606
RYE (bus.):								
Austria-Hungary	164,898	119,547	5,977	100,286	.....	.....	.....	.....
Belgium	23,154	23,137	4	4	.....	.....	.....	.....
Bulgaria	6,906	7,255	4	8,490	.....	.....	.....	.....
Canada	1,715	2,017	148	2,876	212	3,857	555	10,376
Denmark	18,922	10,905	481	10,596	436	8,858	537	12,716
Finland	12,085	10,806	4	4	4	4	.....	.....
France ⁹	54,934	32,002	2,149	33,351	2,002	27,509	1,942	.....
Germany	446,763	410,478	4	4	4	4	.....	.....
Netherlands	17,652	13,471	499	12,391	463	11,958	441	10,207
Russia	896,833	820,078	955,637	9843,740	.....	.....	.....	.....
Spain	34,901	23,950	1,846	28,782	1,800	24,365	1,818	30,445
Sweden	25,728	27,599	913	22,929	813	15,747	936	25,648
United States ..	29,520	42,779	3,213	48,862	4,317	62,933	6,391	91,041
SUGAR, CANE s. tons):								
Australia	185	297	.....	180	.....	336	.....	.....
Brazil	273	4228	.....	.....	.....	.....	.....	4302
Cuba	1,704	2,891	.....	3,398	.....	3,421	.....	4,020
India	1,097	2,566	.....	2,950	.....	3,055	.....	3,616
Java	1,369	1,503	.....	1,781	.....	1,797	.....	.....
United States ..	1,226	301	.....	138	.....	310	231	280
BEET (s. tons):								
Austria-Hungary	1,529	1,854	.....	1,213	.....	805	.....	535
Belgium	272	251	.....	125	.....	.....	.....	.....
France	785	791	.....	150	.....	205	.....	221
Germany	2,292	2,994	.....	1,896	.....	.....	.....	.....
Netherlands	217	231	.....	263	.....	287	.....	220
Russia	1,242	1,681	.....	1,699	.....	1,600	.....	1,373
United States ..	426	733	.....	874	.....	821	.....	765
TOBACCO (lb.):								
Austria-Hungary	190,274	.....	.....	4	.....	.....	.....	.....
Brazil	64,654	59,481	4	547,633	.....	556,788	.....	.....
Cuba	59,323	80,770	4	42,043	.....	.....	.....	.....
Dutch East Indies	134,100	5155,612	4	4	.....	.....	.....	.....
Germany	62,120	50,192	32	4	.....	.....	.....	.....
India	450,000	1,038	4	4	.....	.....	.....	.....
Japan	91,850	126,206	70	105,642	65	91,766	.....	.....
Philippines	40,528	103,024	146	90,695	152	107,698	.....	.....
Russia	207,451	7181,723	4	4	.....	.....	.....	.....
Turkey (Europe) ..	49,177	.....	4	4	4	4	4	4
United States ⁶ ..	1,065,765	1,034,679	1,413	1,153,278	1,518	1,249,608	1,647	1,439,071
WHEAT (bush.):								
Argentina	156,162	113,904	16,420	172,620	16,089	70,224	17,875	219,431
Austria-Hungary	186,085	3153,477	10,937	10199,220	.....	.....	.....	.....
Australasia	73,612	112,159	12,814	191,817	11,752	157,503	.....	121,627
Canada	166,744	161,280	15,370	262,781	14,756	233,743	17,353	189,301
France	356,193	282,689	912,429	9204,908	910,439	9144,149	911,927	.....
Germany	137,999	145,944	104,950	10141,676	4	4	.....	.....
India	285,189	312,032	30,320	323,008	32,940	379,232	35,497	379,829
Italy	190,378	169,581	11,679	176,530	10,556	139,999	10,798	176,368
Roumania	56,751	49,270	4,844	78,520	.....	.....	.....	.....
Russia	783,270	7573,384	42,030	440,082	.....	.....	.....	.....
Spain	144,105	116,629	10,148	152,329	10,340	142,674	10,228	135,709
United Kingdom ..	65,188	64,356	2,051	61,659	2,104	66,350	.....	93,099
United States ...	683,530	891,017	52,316	636,318	45,089	636,655	59,181	921,438

1 Year preceding. 2 Data for 1908. 3 Not including Galicia and Bukowina. 4 No official statistics. 5 Exports. 6 Continental U. S. only. 7 Not including Poland. 8 Incomplete. 9 Excluding territory occupied by enemy. 10 Figures of 1915.

XVI. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

PRODUCTION OF PRINCIPAL CROPS IN THE UNITED STATES, 1909-1919

(Yearbook of the Department of Agriculture)
(000 omitted)

	1909 (census)	1914	1916	1917	1918	1919 1
TOTAL:						
Barley (bush.)	173,344	494,953	182,309	211,759	256,225	165,719
Buckwheat (bush.)	14,849	16,881	11,662	16,022	16,905	16,301
Corn (bush.)	2,552,190	2,672,804	2,566,927	3,065,233	2,502,665	2,917,450
Cotton (500-lb. bales) 2	10,005	16,135	11,450	11,302	12,040	11,030
Flaxseed (bush.)	19,513	13,749	14,296	9,164	13,369	8,919
Hay (tons)	68,833	70,071	91,192	83,308	76,660	91,326
Hops (lb.)	50,697	43,415	50,595	29,388	21,481	29,346
Oats (bush.)	1,007,129	1,141,060	1,251,837	1,592,740	1,538,124	1,248,810
Potatoes (bush.)	389,195	409,921	286,953	442,108	411,860	357,901
Rice (bush.)	21,839	23,649	40,861	34,739	38,604	41,059
Rye (bush.)	29,520	42,779	48,862	62,933	91,041	88,478
Tobacco (lb.)	1,055,765	1,034,679	1,153,278	1,249,276	1,439,071	1,389,458
Wheat (bush.)	683,366	891,017	636,318	636,655	921,438	940,987
AVERAGE PER ACRE:						
Barley (bush.)	22.5	25.8	23.5	23.7	26.3	23.3
Buckwheat (bush.)	16.9	21.3	14.1	17.3	16.5	20.6
Corn (bush.)	25.9	25.8	24.4	26.3	24.0	28.6
Cotton (lb.)	154.3	209.2	156.6	159.7	159.6	158.2
Flaxseed (bush.)	9.4	8.4	9.7	4.6	7.0	5.3
Hay (tons)	1.35	1.43	1.64	1.51	1.36	1.62
Oats (bush.)	28.6	29.7	30.1	36.6	34.7	29.4
Potatoes (bush.)	106.1	110.5	80.5	100.8	95.9	89.2
Rice (bush.)	35.8	34.1	47.0	35.4	34.5	37.7
Rye (bush.)	13.4	16.8	15.2	14.6	14.2	12.5
Tobacco (lb.)	815.3	845.7	816.0	823.1	873.7	730.8
Wheat (bush.)	15.4	16.6	12.2	14.1	15.6	12.8

1 Final estimate issued December 1. 2 Excluding linters.

PRODUCTION OF PRINCIPAL CROPS IN THE UNITED STATES, BY STATES

1909-1919

(Yearbook of the Department of Agriculture)

	1909 (census)		1914		1917		1918		1919	
	Average per Acre	Total (000 omitted)	Average per Acre	Total (000 omitted)	Average per Acre	Total (000 omitted)	Average per Acre	Total (000 omitted)	Average per Acre	Total (000 omitted)
BARLEY (bush.):										
California	26.5	31,270	30.0	42,060	29.0	39,150	26.0	34,320	29.0	30,000
Idaho	40.0	2,480	38.0	7,030	29.0	5,075	28.0	4,760	28.8	3,360
Iowa	22.0	10,890	26.0	9,360	35.0	10,500	31.5	16,947	25.5	8,032
Minnesota	23.6	31,600	23.0	31,694	27.0	34,425	31.0	40,300	20.0	18,200
N. Dakota	21.0	20,727	19.5	28,275	12.5	22,812	21.5	37,281	11.5	14,950
S. Dakota	19.5	19,910	23.0	19,550	27.0	31,482	29.5	39,088	22.0	19,250
Washington	39.5	7,189	39.0	7,098	29.0	4,930	15.2	2,630	30.0	4,140
Wisconsin	28.0	24,248	27.3	18,428	32.0	19,200	35.7	25,418	26.5	13,568
CORN (bush.):										
Alabama	13.5	30,696	17.0	55,488	16.0	77,200	14.6	63,919	14.5	62,843
Georgia	13.9	39,375	14.0	56,000	16.0	72,000	15.0	68,850	14.5	69,890
Illinois	36.9	390,219	29.0	300,034	38.0	418,000	35.5	344,350	35.0	301,000
Indiana	40.0	195,496	33.0	163,317	36.0	196,776	23.0	169,554	.....	.....
Iowa	31.5	341,750	38.0	389,424	37.0	410,700	36.0	351,800	41.6	416,000
Kansas	19.9	154,652	18.5	108,225	13.0	119,028	7.1	43,523	15.5	69,362
Kentucky	29.0	83,348	25.0	91,250	31.5	114,975	26.0	91,000	25.0	82,500
Michigan	35.4	52,907	36.0	63,000	21.5	37,625	30.0	48,300	39.0	64,350
Minnesota	34.8	67,897	35.0	91,000	30.0	91,800	40.0	111,200	40.0	118,000
Mississippi	14.5	28,429	18.5	58,275	20.5	77,613	17.0	66,300	15.0	59,700
Missouri	26.4	191,427	22.0	158,400	35.0	241,500	20.0	133,860	27.0	155,412
Nebraska	24.8	180,133	24.5	173,950	27.0	249,480	17.7	123,086	26.2	184,186
Ohio	39.5	157,513	39.1	142,715	38.0	150,100	36.0	129,600	44.0	162,800
Pennsylvania	32.0	41,494	42.5	62,178	39.0	61,425	40.0	59,161	47.0	72,192
S. Dakota	31.7	55,559	26.0	78,000	28.0	93,800	34.0	105,400	28.5	96,200
Tennessee	22.0	67,682	24.0	80,400	29.0	104,400	24.0	78,000	23.0	74,750
Texas	15.0	75,499	19.5	124,800	11.0	75,900	10.0	65,000	30.0	202,800
Wisconsin	33.0	49,163	40.5	69,862	22.0	42,196	40.2	68,742	47.0	85,500

XVI. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

PRODUCTION OF PRINCIPAL CROPS IN THE UNITED STATES, BY STATES 1909-1919—Continued

	1909 (census)		1914		1917		1918		1919	
	Average per Acre	Total ('000 omitted)	Average per Acre	Total ('000 omitted)	Average per Acre	Total ('000 omitted)	Average per Acre	Total ('000 omitted)	Average per Acre	Total ('000 omitted)
COTTON (bales):										
Alabama	142.0	1,024	209	1,751	125.0	518	149.0	801	130.0	715
Georgia	184.0	1,804	239	2,718	173.0	1,884	190.0	2,122	156.0	1,730
Mississippi	157.0	1,083	195	1,246	155.0	905	187.0	1,226	154.0	946
N. Carolina	210.0	601	290	931	194.0	618	268.0	898	166.0	875
Oklahoma	147.0	545	212	1,262	165.0	959	92.0	577	190.0	930
S. Carolina	210.0	1,100	255	1,534	208.0	1,237	250.0	1,570	243.0	1,475
Texas	125.0	2,523	184	4,592	135.0	3,125	115.0	2,697	125.0	2,700
HAY (tons):										
Iowa	1.64	5,983	1.38	4,071	1.23	4,096	1.30	4,206	1.65	5,181
Michigan	1.30	3,493	1.28	3,011	1.50	3,837	1.03	2,676	1.20	3,180
New York	1.05	5,007	1.20	5,584	1.46	6,325	1.25	5,375	1.50	6,579
Ohio	1.43	4,033	1.13	3,178	1.42	4,154	1.40	4,235	1.38	3,973
Pennsylvania	1.20	3,742	1.28	4,020	1.41	4,360	1.41	4,181	1.45	4,318
Wisconsin	1.53	3,625	1.75	4,467	1.70	4,622	1.40	3,636	1.77	4,738
OATS (bush.):										
Illinois	36.6	150,386	29.3	125,990	52.0	239,200	44.0	198,352	30.0	123,060
Iowa	27.0	128,138	33.0	165,000	47.0	254,364	42.0	244,566	34.6	196,182
Ohio	32.5	57,591	30.5	50,325	44.0	78,100	44.0	74,800	33.5	51,855
Minnesota	33.0	93,898	28.0	85,120	37.0	120,250	41.0	134,562	28.0	90,160
N. Dakota	32.0	65,887	28.0	64,904	15.0	38,625	23.5	60,512	16.0	38,400
Wisconsin	35.0	71,326	27.0	62,100	44.0	99,000	46.6	110,815	33.4	78,123
POTATOES (bush.):										
Iowa	89.0	12,905	86.0	12,642	95.0	13,110	72.0	9,216	43.0	4,945
Maine	225.0	29,250	60.0	33,800	125.0	18,750	200.0	22,400	24.0	24,480
Michigan	105.0	36,540	121.0	41,044	95.0	35,910	84.0	28,560	88.0	28,638
Minnesota	115.0	18,400	114.0	30,780	112.0	33,600	105.0	32,760	87.0	26,100
New York	120.0	52,560	145.0	53,215	95.0	38,000	98.0	37,240	109.0	39,567
Ohio	93.0	16,926	95.0	14,250	100.0	16,000	69.0	11,040	62.0	9,300
Pennsylvania	78.0	23,790	105.0	28,140	92.0	29,532	80.0	22,200	100.0	25,400
Wisconsin	102.0	26,724	124.0	37,696	114.0	34,998	110.0	33,440	94.0	28,200
RICE (bush.):										
Arkansas	40.0	1,120	39.8	3,685	41.0	6,443	37.9	7,310	39.0	6,162
Louisiana	33.8	12,675	32.1	10,802	31.0	15,500	28.0	16,784	35.2	19,712
Texas	34.0	9,894	33.8	8,102	30.0	7,140	32.0	7,840	32.1	6,998
RYE (bush.):										
Indiana	16.5	940	16.3	1,614	15.0	4,110	16.5	6,600	14.0	5,320
Michigan	15.5	5,425	16.0	5,936	14.0	4,774	14.3	7,364	15.0	13,500
Minnesota	19.0	2,280	18.8	5,245	18.5	6,716	20.0	8,700	15.0	7,830
New Jersey	16.3	1,288	18.5	1,295	18.5	1,276	18.5	1,388	16.0	1,296
New York	17.0	2,720	17.7	2,283	19.0	2,375	16.5	1,848	16.1	1,932
Pennsylvania	15.3	5,608	18.0	5,040	17.0	4,165	17.0	3,740	16.0	3,648
Wisconsin	16.3	4,727	16.5	6,797	18.5	7,585	17.6	8,061	15.8	8,925
TOBACCO (lb.):										
Connecticut	1,650	22,110	1,770	35,754	1,400	33,600	1,500	37,500	1,560	39,000
Indiana	950	19,000	900	12,150	950	14,725	930	15,159	850	15,215
Kentucky	835	350,700	910	364,000	900	441,000	960	470,400	830	456,500
Maryland	710	17,750	800	17,600	790	22,594	830	26,560	695	19,575
N. Carolina	600	144,000	650	172,250	630	230,400	705	329,910	560	310,240
Ohio	925	83,250	900	78,120	960	99,072	980	98,000	860	77,400
Pennsylvania	985	30,732	1,450	47,995	1,400	58,100	1,420	64,752	1,320	54,120
S. Carolina	800	32,000	730	36,500	710	51,120	720	62,208	600	81,000
Tennessee	730	53,290	820	63,468	810	81,810	800	62,240	800	88,000
Virginia	775	120,125	650	113,750	700	129,500	770	165,550	570	131,100
W. Virginia	875	12,600	820	8,856	800	9,040	720	9,792	700	10,500
Wisconsin	1,180	37,170	1,180	53,808	1,000	44,500	1,330	65,170	1,270	60,960
WHEAT (bush.):										
Illinois	17.4	37,831	18.5	46,250	18.7	30,850	22.1	63,970	15.8	65,675
Indiana	15.3	33,936	17.4	43,239	18.5	33,432	21.0	49,427	15.0	46,220
Kansas	14.4	77,564	20.5	117,200	12.9	45,443	14.1	102,008	13.0	151,001
Michigan	18.8	16,026	19.7	17,316	18.0	15,422	14.2	10,856	19.6	20,237
Minnesota	16.8	57,094	10.6	42,975	17.5	51,611	21.0	75,792	9.4	37,710
Missouri	14.7	29,837	17.0	43,333	15.3	28,917	17.2	53,154	13.5	57,886
Nebraska	18.8	47,686	18.6	68,116	13.8	13,764	11.2	41,213	13.8	60,675
N. Dakota	13.7	116,782	11.2	81,592	8.0	56,000	13.6	105,672	6.9	53,613
Ohio	15.9	30,664	18.5	36,538	22.0	41,140	19.0	43,547	19.0	54,440
Pennsylvania	17.0	21,564	18.1	23,747	17.5	24,482	17.0	25,551	17.5	29,055
Washington	23.2	40,920	23.5	41,840	15.8	29,217	13.1	29,187	16.4	46,100

XVI. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

IMPORTS AND EXPORTS OF IMPORTANT AGRICULTURAL PRODUCTS, 1909-1919

(Yearbook of the Department of Agriculture)
(000 omitted)

	1909	1914	1916	1917	1918	1919
IMPORTS						
Total, excluding Forest Products	\$638,612	\$924,247	\$1,189,705	\$1,404,972	\$1,618,874	\$1,782,436
Animal matter:						
Cattle	1,999	18,697	15,188	13,021	17,852	36,996
Horses	2,007	2,605	1,618	1,888	1,187	750
Sheep	502	532	918	857	1,980	1,914
Other animals including fowls	528	2,878	926	837	939	1,264
Butter	141	1,753	212	193	615	1,869
Cheese	5,866	11,011	7,058	4,466	4,089	1,099
Cream		1,550	1,043	666	675	
Milk	23	1,089	1,515	1,746	2,997	
Eggs	36	1,060	111	268	484	233
Silk	79,903	100,930	124,334	160,572	190,674	217,517
Wool	45,171	53,191	142,421	131,137	198,546	224,410
Packing-house products:						
Hides and skins	78,487	120,290	158,861	216,364	131,629	149,289
Meat	796	20,402	11,063	7,250	27,036	48,608
Vegetable matter:						
Cocoa	15,222	20,798	35,144	39,834	41,277	35,954
Chocolate	339	706	660	553	95	56
Coffee	79,112	110,725	115,436	133,184	103,059	143,090
Vegetable fibers:						
Cotton	13,622	19,457	40,150	40,430	36,020	37,634
Flax	2,542	2,870	3,508	4,236	5,818	7,716
Hemp	799	1,564	1,642	2,487	2,748	1,606
Jute	7,216	11,174	7,915	9,855	7,214	6,296
Manila	7,156	9,780	14,067	17,274	30,435	25,331
Sisal grass	10,215	25,861	25,803	25,932	51,533	51,622
Fruits	22,446	33,638	23,286	25,316	24,409	25,817
Corn	189	7,917	2,865	1,489	3,483	3,272
Oats	2,651	7,886	303	473	1,963	441
Wheat	36	1,762	5,789	41,900	56,873	19,133
Wheat flour	446	364	1,689	1,458	6,372	386
Hay	60	1,634	679	628	4,619	3,677
Hops	1,337	2,791	145	59	72	
Distilled spirits	7,676	7,264	7,232	7,793	4,331	51,317
Malt liquors	3,215	2,967	1,457	1,400	709	30
Wines	12,276	10,117	7,997	8,486	6,615	2,039
Nursery stock	1,946	3,597	3,689	3,956	3,328	
Nuts	8,664	19,783	21,172	32,876	52,848	42,516
Oils, vegetable	18,238	32,321	33,933	47,014	92,324	112,632
Rice, rice meal, etc.	4,698	7,474	6,094	5,774	16,312	17,886
Sago, tapioca, etc.	1,396	1,642	2,227	3,713	5,531	2,730
Seeds	5,958	20,084	33,572	35,880	50,842	35,213
Spices	5,348	5,596	8,949	7,744	11,519	12,191
Sugar	96,554	101,649	208,769	230,946	237,015	309,403
Tea	18,562	16,735	20,600	19,265	30,889	24,391
Tobacco	25,405	35,039	24,624	25,922	45,370	66,330
Vegetables	12,999	15,134	10,811	29,151	30,176	33,687
EXPORTS						
Total, excluding Forest Products	903,238	1,113,974	1,519,071	1,968,253	2,280,460	3,583,170
Animal matter:						
Cattle	18,046	647	2,378	950	1,248	2,093
Horses	3,386	3,389	73,531	59,525	14,924	5,206
Mules	472	691	22,960	27,801	4,885	2,334
Sheep	365	535	232	368	97	187
Swine	144	134	239	348	257	521
Other live animals ¹	114	408	331	392	323	373
Butter	1,268	877	3,590	8,749	6,853	15,844
Cheese	857	414	7,430	15,240	10,785	5,733
Milk, condensed	1,375	1,341	12,713	25,137	68,046	99,971
Eggs	1,199	3,734	6,134	7,569	7,167	12,449
Packing-house products:						
Beef, canned	1,645	462	9,439	16,946	30,035	44,320
Beef, cured	3,472	2,290	4,034	6,728	7,702	9,087
Beef, fresh	12,698	789	28,886	26,277	67,383	79,228
Hides and skins	1,271	2,807	3,875	2,971	4,089	5,579
Lard	52,712	57,773	47,634	77,009	98,217	210,418
Lard, compounds	6,115	5,489	5,147	8,270	6,634	32,037
Pork, cured and pickled ..	54,046	54,543	126,171	173,737	337,126	590,841
Pork, fresh	938	359	7,523	8,876	5,226	6,065

¹ Including fowls.

XVI. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

IMPORTS AND EXPORTS OF IMPORTANT AGRICULTURAL PRODUCTS— *Continued*

(Yearbook of the Department of Agriculture)

(000 omitted)

	1909	1914	1916	1917	1918	1919
EXPORTS— <i>Continued</i>						
Vegetable matter:						
Cotton	\$417,390	\$610,475	\$374,186	\$543,075	\$665,025	\$863,161
Fruits	16,079	31,031	36,073	37,398	32,207	69,141
Barley	4,672	4,253	20,664	19,027	41,651	27,687
Buckwheat		1	481	351	10	184
Corn	25,194	7,008	30,781	72,497	75,306	26,706
Oats	804	758	47,986	55,035	86,125	79,493
Rye	1,049	1,555	15,374	21,600	23,903	53,654
Wheat	68,094	87,953	215,533	298,180	80,803	424,543
Cornmeal	1,549	1,186	1,601	2,757	20,359	14,722
Oatmeal	516	569	1,886	4,491	17,567	13,218
Wheat flour	51,157	54,454	87,338	93,198	244,861	268,062
Total grain and grain products.	160,162	165,302	434,608	588,983	633,939	954,780
Hops	1,271	6,954	4,387	774	994	2,334
Distilled spirits	1,883	2,276	11,063	18,508	5,719	7,394
Malt liquors	1,010	1,485	1,065	1,442	1,729	2,573
Oil cake	25,836	21,668	28,561	31,222	4,994	16,669
Vegetable oils	23,098	16,251	27,165	26,280	25,190	58,893
Seeds	5,256	3,191	3,539	4,002	5,656	7,703
Sugar	2,785	1,840	79,390	77,094	38,761	81,570
Tobacco	30,902	53,964	53,365	59,954	69,700	189,897
Vegetables	3,760	6,936	15,952	22,291	26,973	53,514

AVERAGE PRICES OF AGRICULTURAL PRODUCTS, 1909-1919

(Yearbook of the Department of Agriculture)

	1909	1914	1916	1917	1918	1919
FARM CROPS: 1						
Barley (bush.)	\$0.54	\$0.543	\$0.881	\$1.137	\$0.918	\$1.210
Beans (bush.) ²	2.25-2.75	2.10-3.10	5.100	6.50	5.28	4.28
Buckwheat (bush.)	0.701	0.764	1.127	1.600	1.665	1.474
Corn (bush.)	0.579	0.644	0.889	1.279	1.366	1.349
Cotton (lb.)	0.139	0.068	0.196	0.277	0.276	0.357
Flaxseed (bush.)	1.529	1.256	2.486	2.966	3.402	4.389
Hay (tons)	10.50	11.12	11.220	17.09	20.13	20.15
Hops (lb.) ³	0.12-0.39	0.23-0.50	0.120	0.333	0.193	0.772
Oats (bush.)	0.402	0.438	0.524	0.666	0.710	0.717
Potatoes (bush.)	0.541	0.487	1.461	1.228	1.193	1.614
Rice (bush.)	0.796	0.924	0.889	1.896	1.917	2.670
Rye (bush.)	0.718	0.865	1.221	1.660	1.515	1.345
Tobacco (lb.)	0.101	0.098	0.147	0.240	0.280	0.390
Wheat (bush.)	0.986	0.986	1.603	2.008	2.042	2.151
LIVE STOCK: 4						
Cattle:						
Beefs	2.90-9.50	4.85-11.25	6.56	8.21	9.14	8.56
Milch cows	32.36	53.94	63.18	75.00	84.51	93.27
Horses	95.64	109.32	129.00	129.26	122.16	113.44
Mules	107.84	123.85	.....	.....	.....	.....
Sheep	3.43	4.04	6.77	10.20	10.11	8.35
Swine	6.55	10.40	8.76	.....	15.92	13.36
LIVE STOCK PRODUCTS:						
Butter (lb.) ⁶	0.25-0.37	0.244-0.50	34.4	41.9	52.7	60.0
Eggs (doz.) ⁷	0.19-0.55	0.20-0.62	38.1	43.3	55.0	61.9

1 Average farm prices Dec. 1. 2 Wholesale prices at Boston. 3 Wholesale prices at New York. 4 Prices Nov. 15. 5 Wholesale prices of inferior to prime beef per 100 lb. at Chicago, for the year. 6 Wholesale prices of creamery butter at New York. 7 Wholesale prices of average best fresh eggs at New York.

XVI. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

LIVE STOCK IN THE UNITED STATES, 1910-1919 (Yearbook of the Department of Agriculture) (000 omitted)

	No. Jan. 1, 1910	No. Jan. 1, 1915	No. Jan. 1, 1917	No. Jan. 1, 1918	No. Jan. 1, 1919
MILCH COWS:					
Total, U. S...	21,801	21,262	22,894	22,310	23,467
Illinois	1,232	1,007	1,057	1,050	1,060
Iowa	1,570	1,377	1,405	1,405	1,381
Michigan	936	814	865	865	848
Minnesota	1,125	1,186	1,302	1,328	1,368
Missouri	925	797	875	910	919
New York	1,771	1,509	1,539	1,508	1,473
Ohio	947	895	950	1,000	1,030
Pennsylvania	1,140	943	980	960	979
Texas	1,137	1,086	1,175	1,128	1,060
Wisconsin	1,506	1,626	1,750	1,785	1,803
OTHER CATTLE:					
Total, U. S...	47,279	37,067	41,689	44,112	44,399
California	1,120	1,480	1,636	1,701	1,650
Illinois	1,974	1,180	1,251	1,314	1,367
Iowa	3,611	2,683	2,754	2,919	2,861
Kansas	3,260	1,768	2,000	2,354	2,401
Minnesota	1,228	1,208	1,400	1,600	1,632
Missouri	2,165	1,414	1,650	1,782	1,782
Nebraska	3,040	2,034	2,525	2,940	2,940
Oklahoma	1,637	1,119	1,300	1,430	1,444
Texas	7,131	5,121	5,482	4,660	3,961
Wisconsin	1,081	1,216	1,340	1,394	1,436
HORSES:					
Total, U. S...	21,040	21,195	21,210	21,555	21,534
Illinois	1,655	1,467	1,452	1,467	1,467
Indiana	847	854	845	837	829
Iowa	1,447	1,600	1,552	1,583	1,567
Kansas	1,187	1,132	1,120	1,142	1,153
Missouri	1,005	1,095	1,020	1,040	1,040
Nebraska	1,045	1,038	1,018	1,049	1,049
Ohio	977	910	892	900	891
Oklahoma	804	758	730	737	744
Texas	1,369	1,192	1,200	1,212	1,164
MULES:					
Total, U. S...	4,123	4,479	4,723	4,837	4,925
Alabama	253	281	278	289	304
Georgia	248	309	324	334	344
Mississippi	290	292	292	307	316
Tennessee	290	275	270	273	278
Texas	702	752	800	808	792
SHEEP:					
Total, U. S...	57,216	49,956	47,616	48,603	49,863
Arizona	1,020	1,761	1,632	1,550	1,400
California	2,372	2,500	2,524	2,776	2,943
Colorado	1,729	1,751	1,950	2,350	2,303
Idaho	4,248	3,041	3,170	3,202	3,234
Michigan	2,151	2,033	1,834	1,926	2,119
Missouri	957	1,490	1,370	1,466	1,539
Montana	5,747	4,379	3,500	3,045	2,984
New Mexico	4,729	3,340	3,300	3,135	3,135
Ohio	3,203	3,263	2,944	2,950	2,980
Oregon	2,581	2,563	2,400	2,448	2,497
Texas	1,909	2,114	2,328	2,188	2,232
Utah	3,177	2,068	2,089	2,340	2,410
Wyoming	7,316	4,427	4,100	4,100	4,018
SWINE:					
Total, U. S...	47,782	64,618	67,503	70,978	75,587
Georgia	1,647	2,042	2,585	2,766	3,043
Illinois	3,772	4,358	4,444	5,111	5,724
Indiana	2,578	4,167	3,970	4,168	4,668
Iowa	6,485	8,720	9,370	10,307	10,925
Kansas	1,942	2,656	2,535	2,566	2,381
Missouri	2,714	4,250	4,280	4,494	4,943
Nebraska	3,201	3,809	4,200	4,250	4,250
Ohio	2,647	3,640	3,527	3,878	4,266
Texas	3,205	2,880	3,229	2,900	2,320
Wisconsin	1,651	2,225	2,060	2,019	2,181

AGRICULTURAL STATISTICS FROM CENSUS OF 1910

	Total	Per- cent age
Land area (acres)	1,903,290,000	....
Farms (acres)	878,798,000	46.2
Improved (acres)	478,452,000	54.5
Woodland (acres)	190,866,000	21.7
Other unimproved (acres)	209,481,000	23.8
Number of farms	6,361,502	....
Average area per farm (acres)	138.1	....
Average area of im- proved land per farm (acres)	75.2	....
Farms under 20 acres..	.....	13.2
Farms of 20 to 99 acres	.....	44.8
Farms of 100 to 499 acres	.....	39.2
Farms of 500 to 1,000 acres and over .....	.....	2.8
Value of crops of Con- tinental U. S.	\$5,487,161,223	....
Value of all farm prop- erty, and per cent. in- crease	\$40,991,450,000	200.5
Value of land	\$28,475,674,000	218.1
Value of buildings..	\$6,325,452,000	177.8
Value of implements and machinery ..	\$1,265,150,000	168.7
Value of animals, poultry and bees.	\$4,925,173,000	160.1
Value of all property represented in—		
Lands .....	.....	69.5
Buildings .....	.....	15.4
Implements and machinery .....	.....	3.0
Animals, poultry and bees .....	.....	12.0
Average value per farm of—		
All property	\$6,444	....
Lands and buildings only	\$5,471	....
Average value of land per acre	\$32.40	....
FARM EXPENSES		
Labor:		
Farms reporting	2,922,288	....
Per cent. of all farms	.....	45.9
Cash expended	\$521,727,000	....
Rent and board fur- nished	\$129,878,000	....
Feed:		
Farms reporting	2,368,905	....
Per cent. of all farms	.....	37.2
Amount expended	\$299,839,000	....
Fertilizer:		
Per cent. of all farms	.....	28.7
Farms reporting	1,823,032	....
Amount expended	\$114,884,000	....
NATIVITY OF FARM OPERATORS		
Number of farms oper- ated by—		
Native white	4,771,063	....
Foreign white	669,556	....
Negro and other non-white	920,883	....
Percentage of operators who own their farm among—		
Native white .....	.....	66.3
Foreign white .....	.....	81.4
Negro and other non-white .....	.....	26.2

XVII. THE MINERAL INDUSTRIES

MINING AND ORE DRESSING

CHARLES E. LOCKE

The Mining Industry.—The year 1919 has been one of reconstruction and readjustment after the war, with conditions remaining in a somewhat unsettled state at the end of the year. Costs of operation still remain on a war basis although prices of products have been reduced. The signing of the armistice and the cessation of actual hostilities left the country with large stocks of many metals on hand and simultaneously shut off the demand for materials for warfare. This, coupled with the lack of any European commercial demand and the existence of a large unknown amount of scrap metal in the fighting districts, could only lead to the result of reduced prices and curtailed production. Taking shipments of Lake Superior iron ore as an index, the tonnage from Lake ports in 1919 to Nov. 1 was 43,978,414 tons or about 13 million tons less than in the year 1919 (see also *Iron and Steel, infra*). It is only fair to say that over 5,000,000 tons of this decrease was due to a dockmen's strike in August (see XV, *Labor*). Copper production was cut very nearly in half (see XII, *Economic Conditions*). Mining of some of the so-called war minerals, such as tungsten, chrome, pyrite, manganese, and quicksilver, ceased almost entirely owing to the great drop in prices.

In other lines small mines, plants for retreating old tailings, and low-grade producers, such as the large Burro Mountain mine in New Mexico, suspended operations. Others have continued at no profit, or even at a loss, in the hope that conditions may improve. Gold miners are still without any relief from a condition in which their costs have about doubled whereas the price of their product has remained fixed (see also *Gold and Silver, infra*).

Government relief through the medium of the War Minerals Adjustment Board is being afforded to those operators who embarked on new enterprises following the Government's appeal for production of certain war minerals. Taxation in all its various forms is an unfair burden on the mining industry from which the miner is entitled to prompt relief.

The removal of all Government restrictions, together with a plan for the gradual marketing of the Government's war stocks, practically restored the operation of the natural law of supply and demand. Prices of most metals declined during the first half of the year and picked up again in the autumn. Pig iron around \$30 per ton in Jan. declined to \$25 in the spring and rose to \$27 or \$28 in the fall (see also XII, *Economic Conditions*). Similar figures for copper were 20 cents, 15 cents, and 22 cents per pound (see *ibid.*); for lead, 5.5 cents, 5.0 cents, and 7.0 cents per pound; for zinc, 7.5 cents, 6.5 cents, and 8.0 cents per pound; for tin, 71 cents, 72 cents, and 55 cents per pound. Platinum, which had been held at the fixed price of \$100 per ounce, climbed to \$140 after the restriction was removed, and likewise silver, held at \$1.01 per ounce up to May, climbed to \$1.35 in December.

A new silver camp has been discovered at Divide, Nev., not far from Tonopah, which gives promise of becoming an important producer. New gold finds have also been reported from Canada, but development has not progressed sufficiently to make any real estimate of their future value. The old Comstock mines in Nevada report finds of high-grade ore. The high price of silver has rejuvenated some of the old silver mines of Colorado and led to a boom in mining

in that state. The country has experienced a tremendous boom in oil, and speculation has run wild.

Curtailment of production and demobilization of the Army have eased the labor situation so that in some districts a temporary surplus of labor occurred, but many parts of the country still report a shortage of miners. In general, operators, confronted with lower metal prices and reduced metal demand, cut off war-time bonuses to labor and attempted to go back to pre-war wage schedules. This effort was not entirely successful, and toward the end of the year some operators in copper districts found it advisable to restore war-time wages on account of the continued high cost of living and the betterment of metal prices.

Strikes of greater or less duration have occurred in many places, including Cobalt and Kirkland Lake, Ont.; Butte, Mont.; Grass Valley, Cal.; Coeur d'Alene, Idaho; Ely, Tonopah, and Divide, Nev.; Oatman and Jerome, Ariz.; Garfield and Park City, Utah; Leadville, Col. The steel strike came in the fall, followed by the culmination in the country-wide coal strike in November. An analysis of these strikes shows that they were due either to general labor unrest, or to activities of agitators and radicals such as the I. W. W., or to a disinclination to accept any wage reductions from the war basis, especially as long as high living cost continued. In practically all cases the strikes failed completely or were settled with only slight gains by the strikers. (See also XV, *Labor*.)

Mining Methods.—Under practical mining should be noted increased development and construction which had been held up during the war; increased use of labor-saving devices, such as mechanical shoveling and motor haulage, to save high labor costs; more attention to the Safety First movement, which is continually reducing the accident rate in mining; and increased application of cement and concrete for grouting and fire-proofing mine shafts and for many other uses in mining.

Ore Dressing.—During the war period the pressure for maximum production held back technical progress in ore dressing. The changed condi-

tions in 1919 have allowed the ore dresser breathing time to make necessary repairs and replacements and to take up again investigations looking toward improved operation. In the field of coarse crushing large breakers are noted, but in the field of fine crushing the best practice as to the use of ball mills of various kinds, pebble mills, and Chilean mills is still a subject of discussion. Ball mills are favored almost everywhere, but there appears to be a growing belief that it may be a mistake to use these machines to reduce ore from 1½-in. size to 50 mesh in one step and that graded reduction using two or three steps may be preferable.

No special change is seen in the application of screens, classifiers, jigs, and jerking tables or in the use of gravity concentration, amalgamation, magnetic separation, and electrostatic separation. The revolving circular slime table has been pretty well abandoned except in the dressing of native copper ores at Lake Superior, and even there the Calumet and Hecla Co. discarded them in 1919 coincidentally with the starting of their new oil-flotation plant for slimes. The possibility of future exhaustion of the richer Lake Superior iron ores is already turning attention to the beneficiation of the lower-grade ores of this district.

The flotation process continues to receive wide application for simple sulphide ores, but the problem of its general use on oxides and complex sulphides is still unsolved. Flotation litigation was marked by the decision of the U. S. Supreme Court in the Butte & Superior case in June that the use of mechanical agitation with less than one per cent. of oil is an infringement of the Minerals Separation Co. patent. The Miami case, involving the use of the Callow pneumatic flotation process, is still pending. All unlicensed companies that have been using mechanical agitation with under one per cent. of oil would appear to have no alternative but to settle with the Minerals Separation Co. A suit looking toward this end has already been started by the Minerals Separation Co. against the Nevada Consolidated Copper Co. (See also *Gold and Silver*, *infra*.)

COAL, COKE, AND PETROLEUM

R. DAWSON HALL

Coal Mining.—During 1919 the revolving dump has made appreciable advance at coal mines, based mainly on its ability to dump more than one car at a time. As many cars as a trip (train) contains can be dumped by this means without uncoupling. In some cases, where the approach to the mine is by shaft, the dumping is done at the shaft bottom and the hoisting is then by skip and not by cage. This involves a second dumping of the coal with a second coal breakage, but it is quite generally contended that the coal leaves the car and skip so much more gently than it is ejected from the car by ordinary methods that there is no greater degradation of size than is involved in older methods involving but one transfer of the coal. Moreover, in many cases where the coal is to be used for steam raising or coke making, size is not an object, or at least not such a vital one, as it is in the preparation of domestic coal. As the use of the mechanical stoker becomes more general, the size of coal becomes less and less important, and methods tend to change to accordance with the increase in the selling price of the smaller sizes of coal.

An increase in the use of mechanical means for loading mine cars is noticeable. It seems that the manufacturers of coal-loading machinery have so far perfected their product that the problem is less one of machinery than a question of what has generally come to be known as "mining methods." The machine is so greedy of work that it is almost impossible to keep it supplied with cars, and to accommodate it changes must be provided in mine layout, and developments will have to be made in supervision. The loading machine will make obligatory a localizing of production. That coal loading will henceforth not be spread over several acres as in the past, but will be concentrated over a far smaller area, is a quite probable forecast.

The storage-battery locomotive is also making wonderful headway, the mine forces being gradually trained to operate the cells judiciously, and the equipment itself is being gradually made almost foolproof. The excavat-

ing shovel developed during the war, under conditions that fostered quantity production rather than quality production, has had something of a setback. During the war coal was often loaded by the excavator direct into the railroad car, this arrangement precluding screening and sizing and, worse yet, the elimination of impurities. In such case, if the coal, as was usual, had impure streaks or if the shovel dug too deeply into the underclay, so much the worse for the consumer. With coal a drug on the market, conditions changed, and the only plants able to succeed were those that carefully cleaned away the overburden, avoided lifting the underclay, loaded the coal into mine cars, and passed the product over a picking table. The coal-mining industry in places had fallen into an evil way, but it is now realizing its mistake and is more circumspect in conduct.

With halting step but yearly with greater rapidity, the system of avoiding the use of timber by an early coating of the ribs and roof of mine roadways and underground pumping and repairing stations with a thin layer of cement mortar has developed until it is now a somewhat general practice where bad roofs and ribs are encountered. The favorite method is the use of the cement gun, whereby the dry mortar is propelled through a hose to meet at the nozzle a spray of water also under pressure. The two mix and are sprayed over the surface to be coated. The layer of cement is so thin as not to afford any appreciable gain in strength to the parts coated. Its purpose is simply to prevent deleterious atmospheric action, which shortly would cause shelling of the roof and scaling of the coal.

Although mortality from mine explosions is on the wane on the whole, despite the showing of 1919, which is contradictory, the growing menace in the mine, as in the street, is transportation. Larger trips and greater speed make this feature of mining more hazardous than in the past. As the light is focused on this form of peril, new methods and improved equipment will be devised to meet the

dangers, and the death rate will decline.

Coal exports across the seas have grown encouragingly and seem likely to become with the Lake trade a valuable balance that will cure in part the seasonality of the coal industry. A Coal Export Corporation, in which prices will be fixed but each concern affiliated will scramble for the trade, seems now almost assured. The difficulty ahead lies in making the foreign buyer specify just what type of coal he desires and then in determining how, by rigid inspection, to assure him of getting it.

The possibility of being able to identify coal beds by the nature of the exines or outer shards of the spores found in them has been asserted by Reinhardt Thiessen of the U. S. Bureau of Mines. If this is a possibility, we must surely believe that each geological period was a distinct floral period and that members of the floras were somewhat similar throughout all areas during any one span of geologic time. The work is still in its infancy, but indications seem more than promising.

Coke.—During the year the coke industry has sat at the feet of the metal-mining profession and learned to use concentrating tables, centrifugal driers, and Dorr thickeners in the preparation of coal for the oven. Concurrently it has learned that the sulphur in coal is often found in such microscopic iron pyrite as to defy anything approaching complete elimination of that impurity. It is further discovering that some coals, notably those in the Middle West, have large quantities of humus and resinic sulphur that not only was part of the original organic substance (as is probably much, if not all, of the pyrite), but is still incorporated in the chemical substance of coal just as is sulphur

in vulcanite, and perhaps the relation is even more intimate. There seems, therefore, a possibility that some sulphur cannot be eliminated by any of the prevailing methods.

Petroleum.—A careful study has been made of the oil-water emulsions found in bottom settlings of oil tanks, especially those that receive oil direct from the wells. Careful examination showed that permanently emulsified oil is composed of small bubbles of water that range in diameter from 0.004 to 0.020 mm., the most numerous having a diameter of about 0.016 mm., the average distance between the bubbles being less than half their diameter. However, there are large bubbles reaching up to 0.25 mm.

The maximum efficiency of a pumping well which is producing water and oil is obtained, according to McCoy, Shidel, and Trager, who made the above investigation, when the fluid level is kept above the perforated tubing and below the point where the accumulated head of water would stop the flow of oil into the hole, and when the fluid is pumped at the same rate that it comes from the sand. Such conditions can be determined only by a special test of the individual well.

Natural Gas.—Attention has been given to the storage of natural gas in the sands of exhausted gas pools so as to balance the seasonal demand for gas. The gas is usually stored in a shallower sand than that in which it is found, for the water pressures being lighter in such shallow sands, the gas can be forced into them. It is suggested that when a town like Tiffin, Ohio, has an exhausted gas field and is now using gas from outside, the exhausted wells can be used as reservoirs for the local consumption. The exhausted wells by storage can be made producing wells during the winter season.

COPPER

L. S. AUSTIN

Production.—With the removal of Government price control at the end of 1918, the price of copper dropped from 26.5 to 15.5 cents. Soon after, however, it recovered to 22 to 24 cents, receding to less than 20 cents by the end of the year. But the drop in

price produced its effect by causing the stoppage of marginal mines. Later the apprehension of labor troubles prevented new construction, and copper reduction works devoted themselves rather to improvements in operating methods.

Reverberatory Smelting vs. Blast-furnace.—Predictions have recently been made that the reverberatory is bound to supplant the blast furnace in copper smelting because of the advantage it possesses in the treatment of the finer ore and flotation concentrates. It is pointed out, however, that where ore is coarse and where it is possible to avoid roasting, the blast furnace has its advantage, even for sulphides. The essentials for successful reverberatory practice to-day are much as they have been in the past, namely, self-fluxing ores, cheap fuel, and cheap silica brick; whereas for blast-furnace practice the charge may be more refractory, but it must be either sintered or nodulized or come naturally in lumps, and, in addition, the fuel and power must be comparatively cheap. There is no doubt that, at the moment, in favored localities where pulverized coal or fuel oil can be obtained at a much cheaper rate than coke, the reverberatory has the better of the argument; but in every controversy something is always turning up in favor of the other side. It resembles the perpetual fight between armament and projectiles, with which we are all much more familiar at present than we were prior to 1914. Both types of furnaces have their field, but owing to the great increase in tonnage treated by oil flotation and to the improvements in reverberatory practice, the reverberatory seems to be gaining materially in tonnage treated.

The new plant being erected in Chile for the Braden Copper Co. contemplates the use of the blast furnaces entirely, using nodulizing furnaces to prepare the charge. To-day it is about a standoff in cost between the nodulizing or sintering of fine ore for blast-furnace and use of roasting it all for reverberatory practice.

Pulverized Coal in the Blast Furnace.—The latest improvement in blast-furnace practice is the introduction of pulverized coal at the tuyeres, the notable examples of this being the smelter of the Tennessee Copper Co. and the International Nickel Co.'s plant at Copper Cliff, Ont. If the experiments now being tried at various plants besides the two mentioned prove that pulverized coal can be used economically in the blast furnace,

either with or without a proportion of coke (the probabilities being that a certain proportion of coke will be necessary), interest in blast-furnace practice will receive new impetus.

Improved Methods in Reverberatory Smelting.—In smelting in large reverberatory furnaces for the production of matte, using either oil or pulverized coal, the details of practice have changed. A large furnace of this type may be described as a low chamber, 100 to 130 ft. long and 19 to 24 ft. wide, having a transversely arched roof, and of such height that at the firing end a man can stand upright in it, the roof sloping to about two feet lower at the front or tapping end. This is intensely heated by oil or coal burners to a dazzling white heat, while a temperature above the melting point of the charge is maintained at the front end. Increased tonnage output depends on the amount of fuel burned with its increased and intenser consequent heat. It has been found that by widening the outlet flue to 70 sq. ft., as compared with about half that dimension, and by increasing the volume of low-pressure air with, of course, an increase in the oil used, the flame began quite close to the burner nozzles and was shorter and intenser, so that melting proceeded quite rapidly, and the output, formerly 400 tons, was increased to 700 tons or more per day. In older practice the custom was to remove the slag intermittently, using a rabble to assist the flow. In this way some of the crust imperfectly smelted was wasted. In present practice, where 400 tons per day is smelted per furnace, the tapping breast has been closed and the tap-hole so adjusted as to permit continuous flow. In this way the crust remains undisturbed and from beneath it pours a continuous stream. Whereas formerly the wasted slag carried 0.4 per cent. of copper, this has dropped to 0.3 per cent., effecting an important saving.

Ore Treatment.—At the works of the New Cornelia Copper Co. at Ajo, Nev., two-stage crushing of run-of-mine ore is employed. Coarse crushing is done during two eight-hour shifts as there is no storage between the plant and the mine. The ore is crushed in two sets of gyratory ore

breakers to four-inch size and then delivered to a storage bin of 10,000 tons capacity. Fine crushing is done between 3 p.m. and 7 a.m. but can be kept up for 24 hours if necessary. The ore is crushed by means of four units Symonds disk crushers, first by coarse Symonds disk crushers then by finer ones to $\frac{1}{4}$ -in size. It is drawn off and crushed according to the needs of the leaching plant.

The leaching process consists in leaching the ore, crushed to $\frac{1}{4}$ in. size, for eight days by a counter-current system, that is, so that the newest ore receives the richest solution while the oldest takes that which is nearly exhausted of acid. Upward percolation of solution is practiced, using sulphuric acid and such ferric sulphate as is inherent in the process. The neutral solution is treated in tow-

ers, where it is showered down through sulphur-dioxide gas produced in a roasting furnace adjoining. This reduces the ferric iron of the solution to the ferrous form. The solution then goes to the electrolytic tank house where part of its contained copper is precipitated on lead anodes. These are stripped of their copper, and the reduced solution is returned for leaching, so that constantly it is picking up impurities. A portion of the solution must be discarded to prevent the accumulation of sulphates (other than copper sulphate) and the copper in the discard is recovered on scrap iron. Part of the cement copper thus recovered is treated with solution from the electrolytic tank house to the end that the copper be returned to the circulation and the ferric sulphate be reduced.

GOLD AND SILVER

GEORGE J. YOUNG

General Conditions.—The signing of the armistice in November, 1918, created profound disturbances and readjustments which influenced all business and industry and the effects of which, in one form or another, extended throughout the year 1919 in the mining industry. The rapid slump in the prices of copper, lead and zinc, which were low during the first half of the year and which have advanced only in moderate degree since then (see *Mining and Ore Dressing, supra*), had the effect of curtailing mining operations and the production of gold and silver from copper, and lead and zinc ores suffered proportional reduction in amount. Copper production was cut to 60 per cent., and as the copper produced in western states carries with it to the refineries a considerable amount of silver, silver production was reduced in a corresponding degree. In addition, labor disturbances in the form of strikes took place in western mining camps. Hardly a mining state escaped; the Tonopah district of Nevada was shut down for over a month. The prevailing high prices for mining supplies and the inefficiency and scarcity of labor also combined to make mining more difficult and expensive with consequent diminution in the quantity of gold and silver produced. The relatively high price level of silver

throughout 1919 was the one encouraging feature that gave impetus to mining in Nevada. Silver pieces increased for the year about 14.2 cents over the average price for 1918. At the close of the year silver was \$1.35 to \$1.33 per ounce.

Gold Production.—The 1918 gold production, according to the statistics of the U. S. Geological Survey, was 3,313,373 oz., of a value of \$69,493,500, a decrease of 738,067 oz. and \$15,257,200, as compared with 1917. California produced 832,389 oz., value, \$17,207,000; Colorado, 621,791 oz., value, \$12,853,500; Nevada, 322,276 oz., value, \$6,662,000; South Dakota, 328,305 oz., value, \$6,786,700; Arizona, 278,647 oz., value \$5,760,200; Montana, 153,375 oz., value, \$3,170,000; Utah, 152,018 oz., value \$3,142,500; Alaska, 440,622 oz., value, \$9,108,500; Philippine Islands, 44,202 oz., value, \$913,700. The 1919 production of gold will probably be less than these amounts.

Silver Production.—The 1918 silver production was 67,879,206 oz., of a value of \$67,879,206, a decrease of 3,861,156 oz. of a value of \$8,801,106 from the production of 1917. Montana produced 15,341,793 oz., value, \$15,341,793; Nevada, 10,113,405 oz., value, \$10,113,405; Utah, 13,439,811 oz., value, \$13,439,811; Idaho, 10,188,066 oz., value, \$10,188,056; Colorado,

6,982,313 oz., value, \$6,982,313; Arizona, 6,771,490 oz., value, \$6,771,490; Alaska, 796,838 oz., value, \$796,836. The silver production of 1919, due to the causes mentioned above, will probably be less than the production of 1918. Two new producers of silver, the Divide district in Nevada and the Kelly mine in San Bernardino County near Randsburg, Cal., appeared during the year. The Crowe process of deoxidizing cyanide solutions before precipitation by means of a vacuum was announced in the fall of 1918. During 1919 it was introduced in a number of plants, and its use resulted in a decided economy in the zinc required in precipitation.

Gold Mining and Metallurgy.—In California the larger gold mines were confronted with a scarcity of labor, labor unrest, a marked decrease in efficiency of the workers, who in some cases were inexperienced, and a high level price for supplies. The production of the larger mines diminished. It is noteworthy that the grade of the ores produced increased, due to more selective mining. The dredging properties were less affected, although their costs increased and some difficulties in maintaining labor personnel were experienced. There was a noticeable increase in hydraulic- and placer-mining activity but a decrease in copper, lead and zinc mining. In Nevada the Goldfield district showed some signs of renewed activity, chiefly directed toward the large-scale working of low-grade ores left from previous mining operations. Gold production from Elko County was sustained, as well as that from the Comstock. Of Colorado there is little to report other than a slackening of activity in mining and the closing of the Globe smelter at Denver. In South Dakota a serious mine fire in the Homestake caused milling operations to be suspended on Oct. 4 and a reduction in gold output may be expected for 1919. In Alaska mining activities have not resumed their normal conditions (see also VII, *Alaska*). Arizona shows increased activity in certain gold districts. There is little to report in gold metallurgy for the year as the activities of most mining companies have been directed toward development and mining operations.

Silver Mining and Metallurgy.—In Idaho strikes and low metal prices curtailed mining operations. In the first six months of 1919 the mines of the Coeur d'Alene district produced at 60 per cent. of their normal rate. Smelting plants operated at reduced capacity. In Utah smelting capacity was curtailed although all of the smelters remained active. The Tintic district sustained production, but prolonged strikes at Park City will curtail production in that district. In both Montana and Colorado there was diminished mining activity. In Nevada there was a noticeable slackening of production from Tonopah, although the new discoveries at Divide promise to keep the Tonopah mills running at capacity and so sustain the silver production of the state. The increased price of silver stimulated prospecting, and there was much development work on new properties. In California there was a decrease in lead and zinc mining, although activity in the mines of Inyo and San Bernardino Counties began during the year. The discovery of a rich silver mine near Randsburg stimulated prospecting and development in that region. In Arizona the low metal market curtailed production of copper and lead, but some of the old silver properties resumed operation. Both lead and zinc production were curtailed, however, and on the whole the production of silver was probably less than that in 1918.

In silver metallurgy there is little to record. New construction has been inconsequential. The decision in the flotation cases was made on June 2, 1919, by the U. S. Supreme Court of the United States and gives the Minerals Separation Co. the right in the process in so far as it pertains to the use of one per cent. or less of oil in proportion to the weight of the ore in a process in which air bubbles are introduced into the ore pulp by agitation (see also *Mining and Ore Dressing*, *supra*). In an editorial appearing in the *Engineering and Mining Journal* of June 14, 1919, the opinion is advanced that it is doubtful if the decision covers the pneumatic or bubble-column process. As flotation continues to be of more or less importance in gold and silver metallurgy, although not of the same importance

that it is to copper, lead and zinc metallurgy, it thus appears that the limitations of the flotation patents have to be given careful consideration by

mining companies. There is the alternative of the cyanide process which occupies an important place in western gold and silver metallurgy.

IRON AND STEEL

EDWIN F. CONE

General Conditions.—The leading event in the steel industry in 1919 was the nation-wide strike of steel workers called on Sept. 22. It was an attempt by irresponsible leaders of certain branches of organized labor to organize the entire industry and bring it under their control. It resolved itself into a fight for or against the closed shop. The strike was partially successful the first week, but as the weeks passed it gradually failed. A remarkable feature of it was that it was geographical as to its success. In the South and East and in Pittsburgh few plants were affected, whereas in a belt extending northward from Wheeling, W. Va., through the Mahoning Valley and into Cleveland and eastward to Buffalo, the strike closed at first nearly all plants. This was also true of Chicago. Later the Chicago-district plants gradually resumed under Federal military protection. In the first week of the strike, total production of iron and steel was only about 50 per cent. of what it was when the strike was called. Later this increased to 70 per cent. and at the beginning of the coal strike production was nearly normal. (See also I, *American History*; and XV, *Labor*.)

In general the year was characterized by gradual resumption by all plants of peace work instead of war output. As the year progressed the industry slowly gained strength and demand for products increased, especially from the automobile and building trades. When the strike broke, prospects for unusual prosperity were in evidence. Prices maintained a firmness, and variations from a price schedule voluntarily formulated as of March 21, 1919, were not wide, until the last weeks of the year, when premiums ruled on many commodities.

Pig-Iron and Steel Production.—The pig-iron production in 1918, as reported by the American Iron and Steel Institute but not made public

until April, 1919, was 39,051,991 gross tons, as compared with 38,621,216 tons in 1917. The 1918 output was next to the largest of any year, the record having been made in 1916 at 39,434,797 tons. For the first half of 1919 the pig-iron output is given by the same authority as 16,278,175 tons, against 18,227,730 tons in the first half of 1918. Data as to the 1917 and 1918 output of steel ingots and castings did not appear until 1919, the former early in the year and the latter in July. The same authority states that the production of steel ingots and castings in 1917 was 45,060,607 gross tons, or the record for any year. The 1918 output was 44,462,432 tons, or the second largest output in the history of the country. For 1919 the output of steel has been somewhere near the rate in 1915, when it was 35,151,036 tons. Of the 1918 output 1,411,410 tons was steel castings. The 1919 output is estimated at about 34,000,000 tons. (See also XII, *Economic Conditions*.)

Iron and Manganese Ore Production.—The movement of iron ore from the Lake Superior region in 1919 was not as heavy as in 1918. To Nov. 1, 1919, the total for the season had been 43,978,414 tons, as against 56,870,871 tons to Nov. 1, 1918. The domestic output of manganese ore fell decidedly, owing to the lack of the war stimulus and the fact that sufficient quantities were available from foreign countries. Imports of high-grade ore to Sept. 1, 1919, had been 249,810 gross tons, against 309,697 tons to Sept. 1, 1918.

Ferromanganese Production.—The slowing down in the steel industry after the war and the fact that British ferromanganese again appeared as a competitor were the causes of a lessened output of ferromanganese by American makers. The output to Oct. 1, 1919, was at the average rate of 15,249 tons per month, against 28,775 in 1918 and 9,958 in 1913.

Ferroalloys.—A new alloy of a rare element, ferrocerium, has been added to the fairly formidable aggregation of such ferroalloys at the disposal of steel makers. Although of very recent application to the steel industry, its utility seems already to have been established as applied to gray-iron castings of various grades. Dr. Richard Moldenke, who has done much pioneer work in the rarer ferroalloys, revealed some of the beneficial effects of its use in gray iron at the fall meeting of the American Foundrymen's Association. It possesses active properties as a deoxidizer and its use in this connection may be expected.

Alloy Steels.—Steel containing zirconium promises to play an important rôle in the future metallurgy of steel. The war has been the immediate cause of the development of the use of this element. Mystery, at least so far as published data are concerned, surrounds the results that have been attained in the United States from introducing zirconium into various steels. There have been rumors in circulation about the striking properties it bestows on steel, but nothing very definite has been published. The chief difficulty has evidently been, and still is, the production of a uniform ferrozirconium, one containing definite amounts of the metal and correspondingly regular amounts of other ingredients. Until raw materials are obtainable from which a dependable ferrozirconium can be made, definite scientific progress is impossible.

Information from France reveals striking properties of French steel containing nickel and zirconium. A steel of medium carbon content and the usual nickel (three per cent.) but only 0.34 per cent. of zirconium not only possesses a very high tensile strength and an elastic ratio of over 85 per cent., but also in toughness surpasses any other steel hitherto made. The surprising statement is made that this steel, with a thickness of only 10 mm., afforded a better resistance to German bullets than the nickel-molybdenum or the chromium steels of greater thickness. The steel also has a Brinell hardness of 470. (See also XX, *Materials of Construction*.)

The Tungsten Industry.—A feature of war development in the American

steel industry has been the growth of the tungsten industry. Before the war the amount of tungsten ores mined in this country and the quantity of ferrotungsten and tungsten or high-speed steel produced were not large. Great Britain and Germany led in high-speed steels and Germany had almost a monopoly of the ferrotungsten market, even England being dependent on her for these alloys. So great, however, was the war-time need for high-speed tungsten steels for the machining of shells and other munitions that America and Great Britain were forced to develop the tungsten industry. Tungsten ores reached a value of over \$3,000 per gross ton in the early months of 1916, as compared with a cash price of \$270 per ton in 1913, but in December, 1918, the value had fallen to about \$1,000 per ton. The finding of tungsten ores in moderate quantities, together with imports from China and South America, led to the production of ferrotungsten and tungsten powder on a large scale. Few realize the extent of this development alone and the incidental or consequent consumption of high-speed steel besides. With the electric furnace on an established basis it was possible to develop both the ferrotungsten and high-speed steel industry to a high degree. In fact, it was the electric furnace that made this possible. In 1918 the amount of 60-per-cent. tungsten concentrates required to make the ferrotungsten, tungsten powder, and acid used in 1918 has been officially estimated at 13,026 tons. The amount of high-speed steel produced in the United States in 1918, nearly all in electric furnaces, has been put at about 23,000 tons, with the total amount of all kinds of tungsten steel at nearly 30,000 tons—figures probably never equalled by any country.

Steel Castings.—The publication of Germany's war steel output reveals the astonishing fact that in 1917 more steel castings were produced in that country than in the United States. The total German production in that year was 1,495,074 metric tons, as compared with 1,441,407 gross tons in the United States. This comparison is all the more impressive when it is realized that Germany's total steel output was only a little more than

one-third that of the United States, or 16,500,000 tons against 45,060,000 tons in 1917. How greatly the war accelerated the making of steel castings in Germany is shown by the fact that the output was only 363,000 tons out of a total of 18,950,000 tons in 1913, or about two per cent. as against over nine per cent. in 1917 and 1918.

The principal effects of the war on the American steel-castings industry, as judged by the 1918 data, were to increase the demand for acid open-hearth castings and to expand greatly the output of small castings. More acid than basic open-hearth castings were made in 1918, the weight of the acid output exceeding that of the basic by nearly 130,000 tons. This is only the second time, since 1911, that this has occurred. The extent to which the war has developed the American production of small castings is shown by the expansion in electric and converter castings. The electric output in 1918 was 108,296 gross tons as contrasted with 9,207 tons in 1913. Converter foundries in 1918 made 160,844 tons as against 80,506 tons in 1913.

Steel Rails.—An American authority on the manufacture of steel rails, Robert W. Hunt, made two striking statements in an important paper before the fall meeting of the American Institute of Mining and Metallurgical Engineers. Starting with the statement that to secure sound rails it is of supreme importance to have sound ingots, he went so far as to say that although he was not at the time prepared to incorporate hot-top ingots in rail specifications, the time is near when it will be entirely practical to do so; although this may involve a somewhat greater first cost, it will be partly offset by a saving in scrap. The second recommendation or prophecy had to do with the use of pre-melted manganese alloys in steel making, calling attention to the fact that the threatened scarcity of manganese during the war led to the adoption of pre-melting ferromanganese and spiegeleisen, which resulted in marked economy. Mr. Hunt stated that from a metallurgical point of view the results had been very satisfactory.

Hot tops for ingots are as necessary to really sound steel as adequate sink heads for castings are vital to sound

steel castings. It has been a surprise to many that the hot-top ingot has not been more generally adopted in American steel practice. In most new plants; particularly electric steel-ingot practice, they are generally used. As to pre-melting manganese-iron alloys, both British and German experience during the war demonstrated that melting ferromanganese in electric furnaces results in a saving of about 30 per cent. manganese, as well as in other decided advantages. Another interesting development in the steel-rail problem is the serious consideration being given to the heat-treatment of rails by electricity. Experiments along this line are said to have revealed striking results, so much so that the electrical heat treatment of steel rails on a commercial scale is being developed by one progressive American company.

A new light has been thrown on the problem of transverse fissures in rails, proceeding from the conclusions of G. F. Comstock as presented at the spring meeting of the American Electrochemical Society. Comstock's work has led thus far to the discovery, in most cases, of phosphorus streaks in close relation to the fissures. The application of new etching solutions has made this possible. The results of this method of attacking the problem, although not conclusive, tend, as far as they have gone, to establish the quality of the metal as the cause of these dangerous defects. Further research is necessary to prove this hypothesis.

Defects in Gun Steel.—In discussing the defects in nickel gun steel at the February meeting of the American Institute of Mining and Metallurgical Engineers, Dr. Henry M. Howe suggested that possibly American metallurgists and ordnance makers had been too ready to accept nickel steel as the only proper steel for heavy guns. He felt that perhaps carbon steel, under certain conditions of production and treatment, might have met all requirements. It is certain that had the latter been more extensively used in the great rush to produce gun steel in quantity, the serious hindrance to the war ordnance programme caused by the discovery of flakes in the nickel steel would have been avoided. Ex-

pert testimony is that no such defects have been found in carbon steel.

An interesting and presumably unexpected phase of the flake problem is that these defects were found in plentiful numbers in nickel steel made in the electric furnace. Specimens dealt with by Clayton, Foley, and Laney, as mentioned in one of the discussions, were from such electric steel. This is not to imply that the process was at fault; rather it might be supposed that a proper manipulation of the process would prevent such defects. Of interest in this connection is the statement from one large American plant making nickel gun steel by the acid open-hearth process that no such defects were found in its steel. It has been observed that basic steel has more of a tendency to assume a fibrous structure than acid steel. If this is so and if flakes are fibrous in nature or bordering on this, the question comes up whether the basic nature of the electric process or the final refining on a basic bottom was a cause of these flaky or woody fractures in nickel electric steel. As far as the study has gone it appears that these peculiar defects are inherent in the steel from the beginning. Whether they are due to the presence of nickel or to the process of melting, refinement, or heat treatment is undetermined. Of peculiar interest is the possible bearing of this work on the transverse-fissure problem in rails noted above. (See also XX, *Materials of Construction*.)

Chemistry in Steel Making.—Not many years ago the production of a heat of steel was for the most part simply a melting operation, and little attention was paid to the chemical reactions involved and their effect on the product. To-day conditions are radically different. There are several cases in point. Considerable has been heard recently, particularly in England, of the valuable influence of lime in the acid open-hearth bath. In its judicious use certain important chemical reactions are involved which make for a more nearly perfect equilibrium between slag and bath and for a purer steel. The same writer advocates the importance of taking slag as well as metal samples, and there is no doubt of the advantage of employing such

practice when the chemical conditions are understood. There has been also recent recognition of certain chemical relations existing between the slag and steel bath which make it possible to conceive manganese in the steel, so that there is a most important financial saving as well as a better steel.

The steel-works mixer has not been generally regarded, at least in the United States, as a factor in the chemical purification of the metal concerned. It is used almost entirely as a mixing reservoir. But in the *Iron Age* for July 10, 1919, in an article from a German source, is the statement that in Germany the chief purpose of the introduction of the mixer was to act as a desulphurizing agent. A discussion is presented of the chemical reactions involved and of the appreciable and economical removal of sulphur that is possible. The valuable inference is that the chemical principle involved is applicable to the basic open-hearth where sulphur removal is very difficult at present.

The importance of a recognition of chemical principles in making steel is conceded. But the best results cannot be achieved by mediocre talent. Present-day practice demands more and more the educated chemist and metallurgist as the actual steel maker, rather than the man who was once the stocker and then the helper or melter. Only a few years ago a large steel company insisted that the melter should be the head of the steel-making department. But to-day the application of chemistry and especially the greater skill necessary in making alloy steels and in manipulation of the electric furnace demand the highest talent. The future of the chemist-metallurgist in steel making is bright.

Steel Testing.—Some surprising results have been achieved by the use of X-rays in the examination of solid materials. French and British metallurgists have been particularly prominent in this work. One of the earliest applications of the X-ray to metallurgy was in the detection of flaws in steel and other metals. Recent experience shows that with the apparatus available it is possible to detect very small flaws in steel two inches thick. British experimenters announce, however, that apparatus

has lately been devised with which it is confidently expected to penetrate steel up to nine inches thick. French cast-steel brackets for gun carriages were shown by this test to be faulty, and the method of manufacture was changed with resulting correction of the defects. The entire internal structure of cartridges and high-explosive shells has been profitably examined without injury to the object, and welds have been found imperfect by the same agency.

Still more interesting is the possible use of the X-ray in analysis. When the percentage of an element of high atomic weight, such as tungsten, is considerable, as in tool steel, the metal is not so permeable to the rays as when the percentage is low. It appears possible to apply radiography to rapid analysis in particular cases, as the separation of carbon from tungsten steel or the differentiation of various tungsten and alloy steels. Examination of materials without destruction of the object has been a desideratum for many years. Its partial realization seems nearer as investigations proceed. Not only radiography but magnetic analysis are important factors in this evolution. (See also XX, *Materials of Construction*.)

Electrometallurgy.—A new use has been found for the electric furnace, which consists in duplexing it with the cupola. It may be termed "duplex iron" as contrasted with duplex steel. By superheating cupola iron in an arc electric furnace gray-iron castings of unusual properties have been produced commercially. The changes in the metal are striking when it is considered that the iron is kept under electric conditions less than a half hour. Besides the greater fluidity and a certain amount of refining, especially as to sulphur, the density of the metal has been increased, the structure changed, and the strength augmented 75 to 90 per cent. Although only a limited use is claimed

for this dual process, it is probable that duplexing with the cupola will open up a wide field. Dr. Richard Moldenke has pointed out that this process affords a solution of the sulphur problem in cast-iron scrap that has been vexing foundrymen for many months. Not only can iron castings possessing nearly all the desirable physical properties be produced, combining in one iron the good qualities obtainable only separately in different grades, but there is also opened up the probability of producing metal of semi-steel grade and also malleable castings superior to any now made. In fact, the Cincinnati company which now makes public its results in gray iron has accomplished these things.

On Jan. 1, 1919, according to the *Iron Age*, the United States was credited with 287 electric steel furnaces of all types, with 43 in Canada. This compares with 233 in the United States and 36 in Canada on Jan. 1, 1918. Of the 287 in the United States on Jan. 1, 1919, there were 145 of the Heroult type. Interesting features have marked the progress of the American electric-steel industry in the last two years. Statistics of the 1918 steel production, as collected by the American Iron and Steel Institute, show that the total output of electric steel ingots and castings was over three times that of 1916, or 511,364 gross tons in 1918, as compared with 168,543 tons in 1916. The 1913 production was 30,180 tons. About 80 per cent. of the 1918 total, or 403,068 tons, covered electric ingots, and this was over three times the corresponding output in 1916. The increase in electric steel castings was not so large, having been a little more than 60,000 tons greater in 1918 than in 1916, or 108,296 tons as against 42,870 tons. The data also show that the electric furnace has replaced the crucible so far as new installations are concerned, the 1918 crucible output having been less than in 1916.

LEAD

H. O. HOFMAN

Production.—In the year 1919 the production of lead in the United States has fallen off; it has thus shared the fate of the other non-fer-

rous metals. Several lead plants have been consolidated, and others have been forced to shut down some of their furnaces; in fact, several works

are keeping at work only to hold together their organizations, waiting for a greater demand for lead which will permit them to work to capacity.

Ores.—The ores from the Central States, which furnish 75 per cent. of the lead of the country (*A. Y. B.*, 1918, p. 524), contain only small amounts of lead when mined; they are enriched by mechanical means before they are shipped to the smelteries in the form of high-grade concentrate. The crude ore assays from 0.2 to 2.0 per cent. and the concentrate from 70 to 80 per cent. lead. The ores from the Rocky Mountains and the Pacific Coast differ greatly from those of the Mississippi Valley. Most of them contain silver in quantities sufficient to make its recovery profitable, and the lead content is higher than that of the Central States. Some of these ores are concentrated, others go direct to the smelteries. In one class of these sulphide ores, galena and other associated minerals, mainly blende and copper-iron sulphides, are so finely divided that a mechanical separation is impossible. These complex ores cannot be smelted direct for the lead, zinc, or copper they contain. In recent years their treatment has been solved in part by subjecting them to a sulphatizing roast, leaching with sulphuric acid to extract the zinc and the copper, and leaving as residue the lead with the precious metal which can now be readily smelted in the blast furnace. From the zinc-copper solution the copper is precipitated by chemical methods, and later the zinc by electrolysis. The subject has been investigated by Lyon and Ralston (*Bureau of Mines, Bull.* 168, 1919).

Smelting.—The reduced tonnage of the smelting plants has given little incentive to make outlays for improvements which are of general interest. In blastroasting sulphide ore the Dwight-Lloyd sintering machine has almost wholly replaced other apparatus. The charges at present are generally ignited by an atomizing oil-burner. At the works of the U. S. Smelting, Refining & Mining Co. at Midvale, Utah, fuel dust has replaced petroleum residues and is working satisfactorily. One trouble with the Dwight-Lloyd machine in treating certain ores is the cleaning of the grates,

the openings of which are likely to become clogged with sintered product. The original machine has herring-bone grates which require hand labor for cleaning. At Trail, B. C., straight-slot rocking bars have been substituted and are working satisfactorily. The latest improvement is that of Riddell and Davidson, who also use a straight-slot grate but clean the slots by means of pivoted steel bars (*Eng. and Min. Jour.*, cvii, p. 744).

The fuel for the blast furnace is coke. As this is expensive in many localities, attempts have been made to replace it, at least in part, by wood, coal, and even by petroleum and natural gas, but coke still retains its old supremacy. Recently considerable work has been carried on to substitute fuel dust for coke in smelting sulphide copper-nickel ores in the blast furnaces near Sudbury, Ont. (Mathewson and Witherspoon, *Bull. Can. Min. Inst.*, July, 1919, p. 737; *Eng. and Min. Jour.*, cviii, p. 274.) The results show that a partial substitution is practicable. Similar experiments on lead blast furnaces are promising.

The values in the gases from lead furnaces are generally recovered by filtering through bags. The baghouse represents a large outlay of money for a comparatively small filtering capacity. Brooks and Duncan (*Trans. Am. Inst. Min. Engrs.*, lix, p. 218) constructed for the works of the Mineral Point Zinc Co. at Depue, Ill., an automatic filter which greatly increases the filtering power of the bags. A dust collector made by the Allis-Chalmers Co. (*Bull.* 1454) is based on the same principle.

In all lead works there occur cases of lead poisoning due to dust or fume which enters the body through the mouth or nose and is dissolved by the gastric juices. This subject has been discussed by A. Hamilton (*U. S. Bureau of Labor Statistics, Bull.* 141, 1914). A new publication by the same author (*U. S. Bureau of Labor Statistics, Bull.* 253, 1919), on "Women in Lead Industries," covers the manufacture of lead products.

The operations of the Cockle Creek works, New South Wales, have been already noted (*A. Y. B.*, 1916, p. 497; 1918, p. 524). Attention may

be called to a description of this plant which smelts ore, refines lead bullion, and parts doré silver (*Trans. Australasian Inst. Min. Engrs.*, Sept., 1918, p. 1), especially as a number of changes have been made recently in the details of operation.

Refining.—In the Parkes process for desilverizing lead bullion there is produced an intermediary product, the so-called antimony skimming, which consists mainly of lead antimoniate

and oxide. It is smelted in a small blast furnace for hard or antimonial lead, with 15 to 20 per cent. antimony, and is used for bearing metal, type metal, etc. At the works of the International Lead Refining Co. at East Chicago, Ill., G. P. Hulst has added sulphide and oxide antimony ores to his hard-lead charges (*Bull. Am. Inst. Min. Engrs.*, Sept., 1919, p. 1603) and obtained a satisfactory recovery both of lead and antimony.

ZINC

W. R. INGALLS

Industrial Conditions.—The zinc industry had become accustomed to narrow margins long before the termination of the war, so the general depression that followed the armistice and extended well into 1919 produced no great change. There was expectation that Europe would need to buy a good deal of spelter from us, but that hope was not realized until late in the year. In fact, business in Europe was temporarily prostrated.

It is worth while to consider the position of the zinc industry in Europe. Great Britain failed during the four years of war to expand her zinc production in spite of some ambitious attempts. A great new plant at Avonmouth was finally abandoned incomplete. The existing conditions as to labor and fuel in Great Britain scarcely permit zinc smelting to be carried on competitively with any other country. The zinc smelteries of Belgium were not greatly damaged by the Germans, and smelting was resumed in Belgium early in 1919. However, the disorganization of labor, fuel supply, and transportation and the absence of adequate ore supplies, which must await freer ocean traffic, combined to make revival of zinc production a slow process. Not yet has the monthly rate risen even to respectable figures. Germany maintained her zinc production at a high rate during the war and ended with a surplus supply, which was eventually marketed to a large extent in England. In 1919, owing to the political troubles in Upper Silesia (see III, *Germany*), the greatest German zinc district, and industrial disturbances elsewhere, the German production fell to a low ebb. The

present outlook for any large spelter production in Europe, therefore, is not good, and it is improbable that Europe will be able to supply her own requirements, reduced as they are. They were met during the major part of 1919 by the use of the large stocks that had been accumulated by the several Governments, but toward the close of the year these stocks had been nearly absorbed. In October both Great Britain and France had to buy spelter in the United States and there is prospect that much more will have to be supplied from here.

The aftermath of the war had important effects in the zinc business of the United States as well as in that of Europe. The American Government also overbought heavily, and its stocks, not only of spelter, but also of brass, had to be absorbed. With respect to brass, that process is not yet complete, and buying of spelter by brass makers is still insignificant.

Metallurgy.—The war did not develop anything of far-reaching technical importance in the metallurgy of zinc besides the promotion of the electrolytic process. The latter had been instituted previous to the war, which simply hastened its promotion. However, the results of this have been absolutely in conformity with expert opinion expressed at the time of the institution of the process, namely, that its commercial applicability is limited to places where there is a favorable combination of conditions, and those places are few in number. Most of the smaller electrolytic plants erected during the war have been abandoned, and the electrolytic production is now confined mainly to the

three great plants, Great Falls in Montana, Trail in British Columbia, and Risdon in Tasmania. Steps are being taken to convert the last into one of the greatest metallurgical plants of the world.

Nevertheless, the production of high grade spelter by the electrolytic process, added to that which is naturally produced from exceptionally pure ores, has become so great as to verify another pre-war prophecy, namely, the contraction of the premium on high-grade spelter. Whereas before the war this was about 50 per cent. of the price for common metal, it is now hardly more than five per cent. This contraction has naturally abolished the industry of refining common spelter by redistillation, which attained large proportions during the war.

The electrothermic production of zinc is attaining increased proportions in Scandinavia, but the process fails to establish itself anywhere else, and it appears that it must necessarily be confined to places where power is very cheap and whither ore can be carried cheaply. The most important thing in this development of zinc smelting in Sweden and Norway, in my opinion, is its inclusion among the exhibits of how the art of zinc smelting is spreading to new parts of the world. The year 1919 has seen the resumption of smelting at the important plant in Siberia, and early 1920 will see the beginning of construction of a large plant in India. In future years the establishment of a zinc industry in China is to be anticipated. Associ-

ated with this development is the present ability to beneficiate almost any kind of ore, no matter how rebellious. The old practice of distillation will survive. The great advance in the art is most likely to be further development in rough processes of concentration, so as to give the distiller a richer and better product to deal with.

None of the progress in the metallurgy of zinc during the last five years resulted from the direct inspiration of the war. The latter did nothing technically except to hasten what had previously been under consideration. The greatest effect of the war was the encouragement of bolder thought on the part of *entrepreneurs*. Without this, the important developments in Australia and Tasmania would never have been undertaken. Commercially, however, the war has produced great dislocations and readjustments. The American zinc industry, having been enormously stimulated, overbuilt, and having suffered the natural reaction, turned to the development of new uses. One of the first results of this was the growing of competition in the production of zinc oxide. Propaganda for the increased use of sheet zinc is about to be instituted. As 1919 closes, however, it seems certain that America is going to experience a certain revival in its export trade in spelter. How much this will amount to and how long it will be held will depend largely upon the time for the readjustment of the currents of sea traffic and the composition of labor difficulties.

STATISTICS OF MINERAL PRODUCTION
WORLD'S PRINCIPAL MINERAL PRODUCTS, 1905-18
(In metric tons)
(The Mineral Industry)

	1905	1910	1915	1916	1917	1918
Aluminum.....	16,810	.....	86,240	132,500	.....	.....
Asphalt.....	309,629	367,626	.....	.....	.....	.....
Coal.....	928,049,163	1,151,239,643	1,308,800,000 ¹	1,345,207,000 ¹	1,336,300,000 ¹	1,331,700,000 ¹
Copper.....	690,973	865,913	1,080,091	1,377,648	1,452,154	.....
Lead.....	988,727	1,093,043	.....	.....	.....	.....
Petroleum ²	215,261,296	327,615,603	429,119,688	461,493,226 ¹	507,727,302 ¹	514,729,354 ¹
Phosphate rock.....	3,845,552	5,594,856	4,000,000 ¹	4,600,000 ¹	.....	.....
Pig iron.....	54,034,783	66,210,694	64,515,927	.....	.....	.....
Steel.....	43,900,648	58,656,312	.....	.....	.....	.....
Tin.....	95,200 ¹	116,800 ¹	126,800 ¹	122,800 ¹	129,000	.....
Zinc.....	653,565	824,073	.....	.....	.....	.....

¹ Estimates furnished by the U. S. Geological Survey.

² Barrels of 42 gal.

XVII. THE MINERAL INDUSTRIES

MINERAL PRODUCTION BY PRINCIPAL COUNTRIES, 1905-18

(In metric tons, except figures for coal)

(The Mineral Industry, except as indicated)

	1905	1910	1915	1916	1917	1918
COAL (short tons)						
Australasia	9,227,129	12,132,200	.....	.....	.....	.....
Austria-Hungary	41,952,008	47,943,109	52,679,712	50,801,602	50,000,000 ¹	.....
Belgium	21,775,280	23,916,560	15,691,465	19,900,000	16,446,000 ¹	15,229,000 ¹
France	35,218,000	38,349,942	19,908,892	22,000,000	31,847,000 ¹	30,864,000 ¹
Germany	173,810,669	222,375,076	259,139,786	272,099,000 ¹	281,429,000 ¹	273,930,000 ¹
Japan	11,955,946	15,681,324	22,596,750	22,189,969	28,000,000 ¹	30,600,000 ¹
Russia	18,727,766	24,026,000	31,158,400	128,962,724	20,000,000 ¹	.....
United Kingdom	239,906,999	268,676,528	283,570,560	287,110,153	278,319,149 ¹	255,040,328 ¹
United States...	392,722,635 ²	501,596,378 ²	531,619,487 ²	590,098,175 ²	651,402,371 ²	678,211,904 ²
COPPER						
Africa	7,400 ³	13,586	39,472 ⁴	33,916 ⁴	36,288 ⁴	.....
Australia	31,634	40,028	39,358	39,804	39,860	39,731
Austria-Hungary	1,400 ³	2,300 ³	.....	.....	.....	.....
Bolivia	2,032 ³	2,540 ⁵	23,813	29,011	37,444	26,000
Canada	21,815	25,262	45,716	53,139	49,545	53,071
Chile	29,126	38,232	52,341	71,238	102,527	.....
Cuba .....	.....	3,500 ³	8,900 ⁶	9,500 ⁵	10,700 ⁶	.....
Germany	22,500	25,100	35,000 ⁶	35,000 ⁶	45,000 ⁶	40,000 ⁶
Italy	3,578	1,766	940	1,867	1,331	.....
Japan	36,500 ³	49,324	75,416	100,636	111,188	86,596
Mexico	66,200 ³	52,723	20,598	28,411	50,986	70,223
Norway	1,153	1,814	2,828	1,614	.....	.....
Peru	8,800 ³	27,374	34,728	43,078	45,176	44,414
Russia	8,800 ³	22,686	25,962	13,380 ⁶	17,000 ⁶	.....
Spain-Portugal	45,500 ³	55,532	38,989	37,188	42,826	45,104 ⁷
Sweden	1,385	3,111	4,561	3,181	4,423	.....
United States...	403,150	489,957	629,597	874,467	855,539	865,705
LEAD						
Australasia	106,418	105,897	.....	.....	.....	.....
Austria	12,968	15,476	.....	.....	.....	.....
Belgium	22,885	40,715	.....	.....	.....	.....
Canada	25,391	14,967	21,009 ¹	18,823 ¹	14,777 ¹	19,889 ¹
France	24,100	20,226	.....	.....	.....	.....
Germany	152,590	159,851	.....	.....	.....	.....
Greece	13,729	16,710	11,595	.....	.....	.....
Italy	19,097	14,495	21,812	.....	.....	.....
Mexico	101,196	120,662	.....	.....	.....	.....
Spain	185,693	190,523 ¹	171,472 ¹	147,407 ¹	172,909 ¹	169,709 ¹
United Kingdom	28,494	30,799	.....	.....	.....	.....
United States...	290,472	353,186	499,002 ¹	518,124 ¹	554,080 ¹	580,775 ¹
PETROLEUM						
Austria (Galicia)	5,765,317	12,673,688 ²	4,158,899 ²	6,461,706 ²	5,965,447 ²	5,591,620 ²
Dutch E. Indies	7,849,896	11,030,620 ¹	12,386,800 ¹	13,174,399 ¹	12,928,955 ¹	13,284,936 ¹
India	4,137,098	6,137,990 ¹	8,202,674 ¹	8,491,137 ¹	8,078,843 ¹	8,000,000 ²
Mexico .....	.....	3,634,080 ¹	32,910,508 ¹	39,817,402 ¹	55,292,770 ¹	63,828,327 ¹
Persia .....	.....	.....	.....	.....	6,856,063 ²	7,200,000 ²
Rumania	4,420,987	9,723,806 ²	12,029,913 ²	8,945,029 ²	3,720,760 ²	8,730,235 ²
Russia	54,960,270	70,336,574 ²	68,548,062 ²	72,801,110 ²	69,000,000 ²	40,456,182 ²
United States...	134,717,580	209,557,248 ¹	281,101,104 ¹	300,767,158 ¹	335,315,601 ¹	355,927,716 ¹
PIG IRON						
Austria-Hungary	1,540,896 ²	2,143,000 ²	1,959,084 ²	2,418,322 ²	.....	.....
Belgium	1,311,120	1,852,090	68,150	127,825	7,990	.....
Canada	476,554	726,478	828,971	1,060,743	1,061,852	1,083,190
France	3,076,712	4,038,297	4,750,000 ²	1,447,000 ²	1,684,000 ²	1,297,000 ²
Germany	10,987,623 ²	14,793,323 ²	11,790,199 ²	13,281,738 ²	13,142,217 ²	11,758,967 ²
Italy	143,079	353,239	377,510	467,005	471,188	.....
Russia	2,732,756	3,040,049	3,690,300 ²	3,737,593 ²	.....	.....
Spain	215,635	373,322	439,835	501,677	357,699	386,550
Sweden	539,437	603,939	760,701	732,734	838,948	749,800 ²
United Kingdom	9,761,815	10,172,292	8,863,137	9,062,181	9,487,514	9,184,060 ²
United States...	23,260,258	27,740,424	30,394,872	40,065,754	39,239,155	39,679,518

¹ Official figures. ² Unofficial figures. ³ Obtained from Henry R. Merton & Co., Ltd.

⁴ Mostly official, partly by U. S. Geological Survey. ⁵ From Chilean official publication. ⁶ Estimated by U. S. Geological Survey. ⁷ Figures for Spain only. ⁸ Excludes Lorraine, Sarre district, and Luxemburg for November and December.

XVII. THE MINERAL INDUSTRIES

MINERAL PRODUCTION BY PRINCIPAL COUNTRIES, 1905-18—*Continued*

	1905	1910	1915	1916	1917	1918
STEEL						
Austria-Hungary	1,188,000 ²	2,348,294 ²	2,674,197 ²	3,330,306 ²	2,918,848 ²	1,763,745 ²
Belgium	1,227,110	1,944,820	98,820	99,371	9,530	10,540
Canada	409,927	745,971	926,151	1,295,699	1,583,719	1,717,318
France	2,255,223	3,413,304	.....	1,952,000 ²	2,232,000 ²	1,912,000 ²
Germany	10,066,553 ²	13,698,638 ²	13,258,054 ²	16,182,520 ²	16,587,360 ²	14,875,753 ²
Italy	270,199	732,000	1,009,240	1,269,486	1,331,641	.....
Russia	2,266,414	3,313,879	4,900,000 ²	.....	.....	.....
Spain	264,970 ²	316,301 ²	.....	.....	.....	.....
Sweden	368,198	472,249	600,418	614,111	581,000	524,800 ²
United Kingdom	5,905,279	6,476,473	8,686,815	9,343,600	9,960,944	9,744,891
United States....	20,344,230	26,512,438	32,665,453	43,458,059	45,781,577	45,173,831
ZINC						
Austria	9,204	13,305	.....	.....	.....	.....
Belgium	142,555	181,745	.....	.....	.....	.....
France	43,200	51,527	.....	.....	.....	.....
Germany	198,208	227,754	.....	.....	.....	.....
Holland	13,550	20,975	.....	.....	.....	.....
Russia	7,520	8,128	.....	.....	.....	.....
United Kingdom	50,125	63,587	.....	.....	.....	.....
United States....	183,014	251,348	444,074 ¹	605,496 ¹	607,410 ¹	469,845 ¹

¹ Official figures. ² Unofficial figures. ³ Excludes Lorraine, Sarre district, and Luxembourg for November and December.

WORLD'S PRODUCTION AND COINAGE OF PRECIOUS METALS, 1881-1918

(*Report of the Director of the Mint*)

PERIOD	GOLD		SILVER		Commercial Ratio of Silver to Gold
	Fine Ounces	Value	Fine Ounces	Coining Value	
PRODUCTION :					
1881-1885 (average) ..	4,794,755	99,116,000	92,003,944	118,955,000	18.62
1886-1890 (average) ..	5,461,282	112,895,000	108,911,431	140,815,000	21.14
1891-1895 (average) ..	7,882,565	162,947,000	157,581,331	203,742,000	27.06
1896-1900 (average) ..	12,146,939	257,301,100	165,693,304	214,229,700	33.50
1901-1905 (average) ..	15,606,730	322,619,820	167,995,408	217,206,180	36.30
1906	19,171,080	402,503,000	165,054,497	213,403,800	30.54
1907	19,977,260	412,966,600	184,206,984	238,166,600	31.24
1908	21,422,244	442,476,900	203,131,404	262,634,500	38.64
1909	21,965,111	454,059,100	212,149,023	274,293,700	39.74
1910	22,022,180	455,239,100	221,715,763	286,662,700	38.22
1911	22,348,313	461,939,700	226,192,923	292,451,500	38.33
1912	22,549,335	466,136,100	224,310,654	261,402,300	33.62
1913	22,249,596	459,941,100	223,907,843	135,246,400	34.19
1914	22,039,598	455,676,600	211,103,377	116,719,200	37.49
1915	22,758,808	470,466,214	179,753,978	93,227,934	39.84
1916	21,970,788	454,176,500	161,177,900	208,391,628	30.11
1917	20,491,176	423,590,200	163,992,700	212,030,965	23.09
1918	18,427,232	380,924,700	197,394,900	255,217,648	21.00
COINAGE :					
1881-1890 (average) ..	5,898,643	121,935,781	97,881,838	126,554,296	.....
1891-1900 (average) ..	13,707,461	283,358,375	116,010,359	149,993,192	.....
1901-1905 (average) ..	13,645,423	282,075,960	137,801,324	178,852,964	.....
1906	17,721,058	366,326,788	120,339,501	155,590,466	.....
1907	19,921,014	411,803,902	171,561,490	221,816,867	.....
1908	15,828,573	327,205,649	151,352,824	195,688,499	.....
1909	15,153,116	313,242,714	87,728,951	113,427,331	.....
1910	22,004,542	454,951,834	78,786,842	108,934,541	.....
1911	18,002,444	372,143,555	117,237,838	148,156,282	.....
1912	17,447,478	360,671,382	161,763,415	171,293,019	.....
1913	15,494,784	320,305,619	155,497,316	155,265,702	.....
1914	5,081,928	218,585,071	192,501,238	106,476,285	.....
1915 .....	.....	223,927,555	225,116,911	116,817,667	.....
1916 .....	.....	106,499,095	292,148,559	200,551,221	.....
1917 .....	.....	128,771,999	236,596,805	256,575,819	.....
1918 .....	.....	90,662,792	222,208,135	218,755,020	.....

XVII. THE MINERAL INDUSTRIES

MINERAL PRODUCTION OF THE UNITED STATES, 1905-18

(United States Geological Survey)

	1905	1910	1915	1916	1917	1918
METALS :						
Iron ore.....long tons	42,526,133	56,889,734	55,493,100	77,870,553	75,573,207	72,021,202
Iron, pig.....long tons	22,992,380	27,303,567	30,384,486	39,126,324	38,612,546	38,230,440
Steel .....long tons	20,023,947	26,094,919	32,151,036	42,773,680	45,060,607	.....
Silver .....troy ounces	56,101,600	57,137,900	74,961,075	74,414,802	71,710,362	67,810,139
Gold .....troy ounces	4,265,742	4,657,018	4,887,604	4,479,056	4,051,440	3,320,784
Copper.....pounds	888,784,267	1,080,159,509	1,388,009,527	1,927,850,548	1,886,120,721	1,908,533,395
Lead.....short tons.	302,000	372,227	507,026	552,228	548,450	539,686
Zinc .....short tons	203,849	252,479	458,135	563,451	584,597	492,405
Quicksilver ....flasks	30,451	20,601	21,033	29,932	36,159	32,883
Aluminum.....pounds	11,347,000	47,734,000	99,806,000	.....	.....	.....
Antimonial lead, sh. t.	.....	14,009	23,221	24,038	18,616	18,750
Platinum, troy ounces	318	773	8,665	28,088	38,831	59,753
NON-METALS : 1						
Fuels :						
Bitum. coal...sh. t.	315,062,785	417,111,142	442,624,426	502,519,682	551,790,563	579,835,820
Penn. anthracite, l. t.	69,339,152	75,163,246	79,151,876	78,151,876	88,333,171	88,247,570
Coke.....short tons	32,231,129	41,708,810	41,581,150	54,533,585	55,606,828	56,478,372
Petroleum.....barrels	134,717,580	209,557,218	281,104,104	300,767,158	335,315,601	355,927,716
Structl Materials :						
Cement .....barrels	40,102,308	77,785,141	87,685,222	95,394,433	91,342,930	71,348,474
Lime .....short tons	2,984,100	3,505,954	3,622,810	4,073,433	3,786,364	3,206,016
Sand & gravel, sh. t.	23,204,967	67,949,347	74,719,259	87,073,415	74,476,650	59,651,539
Stone.....sh. t.	.....	.....	.....	.....	83,574,900	68,566,500
Abrasive Materials :						
Corundum and emery ..short tons...	2,126	1,028	3,063	15,282	17,135	10,422
Garnet ...short tons	5,050	3,814	4,301	6,171	4,995	4,696
Pumice ..short tons	1,832	23,271	27,708	33,320	35,293	30,637
Oilstones .....sh. t.	.....	.....	.....	.....	1,816	1,010
Chemical Materials :						
Arsenious oxide, lb.	1,507,386	2,994,000	10,996,000	11,972,000	12,302,000	12,646,000
Borax (crude) sh. t.	46,234	42,357	67,003	103,525	108,575	88,794
Bromine ....pounds	1,192,758	245,437	855,857	728,520	895,499	1,727,156
Fluorspar ...sh. tons	57,385	69,427	136,941	155,735	218,828	263,817
Gypsum.....short tons	1,043,202	2,379,057	2,447,611	2,757,730	2,696,226	1,057,015
Phosphate rock, l. t.	1,947,190	2,654,988	1,835,667	1,982,385	2,581,287	2,490,760
Pyrite .....long tons	253,000	241,612	394,124	423,556	462,662	464,494
Sulphur.....long tons	181,677	255,534	.....	.....	1,120,378	1,266,709
Salt .....barrels	25,966,122	30,305,656	38,231,496	45,431,349	49,844,121	.....
Pigments :						
Barytes ..short tons	48,235	42,975	108,547	221,952	206,888	155,368
Mineral paints, sh. t.	63,521	85,304	198,825	135,606	140,636	135,746
Zinc oxide ....sh. t.	63,603	58,481				
Miscellaneous :						
Asbestos ..short tons	3,109	3,693	1,731	1,479	1,683	802
Asphalt ..short tons	115,267	260,080	740,254	786,811	782,713	587,609
Bauxite.....long tons	48,129	148,932	297,041	425,100	568,690	606,043
Chromic iron ore						
.....long tons	22	205	3,281	47,035	43,725	82,430
Feldspar ..short tons	35,419	81,102	105,118	132,681	141,924	99,120
Fuller's earth, sh. t.	25,178	32,822	47,901	67,822	72,576	84,468
Glass sand ...sh. t.	1,060,334	1,461,089	1,884,044	2,018,317	1,942,675	2,172,887
Graphite ..short tons	24,986	4,202	4,718	8,088	13,593	12,990
Magnesite ...sh. tons	3,933	12,443	30,499	154,974	316,838	231,605
Manganese ore, l. t.	4,118	2,258	8,708	26,997	129,405	305,869
Manganiferous ore						
.....long tons	.....	61,101	196,640	548,803	860,944	1,170,462
Mica .....pounds	3,176,875	10,606,190	8,471,821	9,731,863	8,134,533	6,148,200
Mineral waters						
.....gallons sold	46,544,361	62,030,125	52,113,503	55,928,461	46,784,419	40,709,722
Quartz .....short tons	51,145	63,577	112,575	88,514	142,673	71,740
Talc and soapstone ..short tons	40,134	79,006	98,677	119,725	144,177	137,140
Talc, fibrous ..sh. t.	56,500	71,710	88,214	93,236	74,671	71,167
Thorium minerals (monazite, and zircon) .....pounds						
.....pounds	1,352,418	99,301	.....	37,872	.....	.....
Tungsten ore ..sh. t.	803	1,821	2,332	5,923	6,144	5,041

1 Including brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania.

XVII. THE MINERAL INDUSTRIES

VALUE OF MINERAL PRODUCTS OF THE UNITED STATES, 1905-18

(United States Geological Survey)

	1905	1910	1915	1916	1917	1918
METALS:						
Iron ore	\$75,165,604	\$140,735,607	\$101,288,984	\$181,902,277	\$238,260,444	\$244,368,147
Iron, pig 1	382,450,000	412,162,486	401,409,604	603,478,115	1,000,180,910	1,180,100,965
Silver	34,221,976	30,854,500	37,397,300	48,953,000	59,078,100	66,485,129
Gold	88,180,700	96,269,100	101,035,700	92,590,300	83,700,700	68,646,700
Copper	137,761,561	137,180,257	242,902,000	474,288,000	514,911,000	471,408,000
Lead	23,690,000	32,755,976	47,600,000	76,207,000	91,353,000	70,000,000
Zinc	24,054,182	27,267,732	113,617,000	151,005,000	119,258,000	89,618,000
Quicksilver	1,103,120	958,153	1,826,912	3,768,139	.....	.....
Aluminum	3,246,300	8,955,700	16,280,000	33,900,000	45,882,000	41,159,000
Antimonial lead .....	.....	1,338,090	3,661,736	4,483,821	3,000,000	.....
Platinum	5,320	25,277	478,688	2,301,762	4,023,767	6,417,980
NON-METALS:						
Fuels:						
Bituminous coal	334,658,294	469,281,719	502,037,688	665,116,077	1,249,272,837	1,491,809,947
Penn. anthracite	141,879,000	160,275,302	184,653,498	202,009,561	283,650,723	336,480,340
Coke	72,476,196	99,742,701	105,503,868	170,841,197	208,243,017	382,324,368
Petroleum	84,157,399	127,899,688	179,462,890	330,899,868	522,635,213	730,943,961
Natural gas	41,562,855	70,756,158	101,312,381	120,227,468	142,089,334	157,000,000
Structural						
Materials:						
Clay products ..	149,697,188	170,115,974	163,120,232	207,260,091	232,512,773	221,884,651
Cement	35,931,533	68,752,092	75,155,102	104,689,090	123,210,458	113,554,854
Lime	10,941,680	14,088,039	14,424,036	18,509,305	23,807,877	26,808,909
Sand and gravel ..	11,223,645	21,037,630	21,514,977	27,852,198	32,611,918	33,717,351
Stone	63,798,748	76,520,584	74,595,352	79,069,683	82,215,671	82,700,430
Abrasive Materials:						
Grindstones	777,606	796,294	648,479	766,140	1,147,784	1,776,282
Corundum and emery	61,464	15,077	31,131	123,901	241,050	112,878
Garnet	148,095	113,574	139,584	208,850	198,327	248,161
Pumice	5,540	94,943	63,185	82,263	84,814	91,178
Oilstones, etc.	244,546	228,694	115,175	154,573	168,704	189,033
Chemical Materials:						
Arsenious oxide ..	32,210	52,305	302,116	555,187	1,118,313	1,213,000
Borax (crude) ..	1,019,154	1,201,842	1,677,099	2,409,459	3,609,632	2,179,830
Bromine	178,914	31,684	856,307	951,932	492,703	970,099
Flourspar	362,488	430,196	764,475	922,654	2,287,722	5,105,381
Gypsum	3,029,227	6,523,029	6,596,893	7,959,032	11,116,452	11,470,854
Phosphate rock ..	6,763,403	10,917,000	5,413,449	5,896,993	7,771,084	8,211,463
Pyrite	938,492	977,978	1,674,933	1,965,702	2,485,435	2,644,515
Sulphur	3,706,560	4,605,112	.....	.....	23,987,000	27,868,000
Salt	6,095,922	7,900,344	11,747,686	13,645,947	19,940,442	26,940,361
Pigments:						
Barytes (crude) ..	148,803	121,746	381,032	1,011,232	1,171,184	1,044,905
Mineral paints ..	1,697,130	2,141,654	15,514,059	23,515,803	26,972,137	26,464,590
Zinc oxide	5,520,240	5,238,945	.....	.....	.....	.....
Miscellaneous:						
Asbestos	42,975	68,357	76,952	448,214	506,056	121,687
Asphalt	758,153	3,080,670	5,242,073	7,102,132	8,470,615	8,216,012
Bauxite	240,292	716,238	1,514,834	2,296,400	3,119,058	3,449,646
Chromic iron ore ..	375	2,729	36,744	726,243	1,049,400	9,355,567
Feldspar	226,157	502,452	489,233	702,278	728,838	674,246
Fuller's earth ..	214,497	293,709	489,219	706,951	772,087	1,146,354
Glass sand	1,107,730	1,516,711	1,606,640	1,957,797	2,685,014	4,209,728
Graphite	318,211	335,443	429,631	935,471	1,167,879	1,524,254
Magnesite	15,221	74,658	274,491	1,393,693	2,899,818	1,812,601
Manganese ore ..	36,214	22,892	108,049	627,417	4,109,722	8,240,386
Manganiferous ore .....	.....	186,765	822,216	2,005,491	5,406,061	5,635,579
Mica	178,588	337,097	428,769	594,391	806,782	763,920
Mineral waters ..	6,491,251	6,357,590	5,138,794	5,735,035	4,931,710	4,533,001
Quartz	104,109	193,757	273,553	242,786	318,069	259,330
Talc & soapstone ..	637,062	684,213	1,026,739	1,292,293	1,411,416	1,778,919
Talc. fibrous	445,000	728,180	864,843	961,510	881,462	902,100
Thorium minerals, (monazite), and zircon	163,908	12,006	.....	.....	.....	.....
Tungsten ore	268,676	807,307	4,100,000	500,000	6,783,000	6,802,000

1 "Spot" value, that is, value at the point of production.

XVII. THE MINERAL INDUSTRIES

MINERAL PRODUCTION BY STATES, 1905-18

(United States Geological Survey)

	1905	1910	1915	1916	1917	1918
METALS:						
COPPER (pounds):						
Alaska	4,900,866	4,311,026	70,695,286	113,823,064	84,759,086	67,081,648
Arizona	226,854,461	297,250,538	432,467,690	694,847,307	719,035,514	769,521,729
California	16,697,489	45,160,200	37,658,444	43,400,876	44,933,846	44,150,761
Colorado	9,404,830	9,307,497	7,272,178	9,536,193	10,054,951	7,591,570
Idaho	7,321,585	6,877,515	6,217,728	7,248,794	6,446,224	5,836,795
Michigan	230,287,992	221,462,984	238,956,410	269,794,531	268,598,091	231,096,158
Montana	314,750,620	283,078,516	268,263,040	352,139,768	276,225,977	326,426,761
Nevada	413,292	64,494,640	67,757,322	100,816,724	115,028,161	106,266,603
New Mexico	5,331,132	3,784,609	62,817,234	79,863,439	107,593,615	96,559,580
Tennessee		16,691,717	18,205,308	14,556,278	16,093,757	15,053,568
Utah	54,083,506	125,185,455	175,177,695	232,335,950	227,840,447	230,964,908
GOLD (fine ounces):						
Alaska	722,026	787,148	808,346	780,037	709,729	440,622
Arizona	130,192	165,113	220,392	197,989	250,613	273,647
California	928,660	988,854	1,090,731	1,063,302	1,012,481	832,389
Colorado	1,243,291	992,967	1,089,927	928,075	772,766	621,791
Idaho	52,032	50,113	56,628	51,195	36,511	30,764
Montana	236,520	179,974	240,825	209,386	177,690	153,375
Nevada	259,246	913,015	574,874	438,505	335,361	332,276
New Mexico	12,858	23,084	70,632	65,306	52,505	30,871
Oregon	60,222	32,960	90,321	91,985	81,624	60,951
South Dakota	334,460	260,266	358,145	361,444	356,662	328,305
Utah	248,691	208,627	189,045	186,679	170,383	152,103
Washington	17,899	38,992	22,330	28,087	23,617	16,556
IRON ORE (long tons):						
Alabama	3,782,831	4,801,275	5,309,354	6,747,901	7,037,707	.....
Michigan	10,885,902	13,303,906	12,514,516	18,071,016	17,868,601	.....
Minnesota	21,735,182	31,966,769	33,464,660	44,585,422	44,595,232	.....
New Jersey	526,271	521,832	415,234	493,004	489,943	.....
New York	1,139,937	1,287,209	998,845	1,342,507	1,304,317	.....
Pennsylvania	808,717	739,799	363,309	559,431	546,700	.....
Tennessee	734,770	732,247	284,185	455,834	508,529	.....
Virginia	740,345	903,377	348,042	440,492	469,903	.....
Wisconsin	859,283	1,149,651	1,095,388	1,304,518	1,202,235	.....
IRON, PIG (long tons):						
Alabama	1,604,062	1,939,147	2,049,453	2,762,885	2,953,705	.....
Illinois	2,034,483	2,675,646	2,447,220	3,922,512	3,483,096	.....
New York	1,198,068	1,938,407	2,104,780 ²	2,352,535 ²	2,417,527 ²	.....
Ohio	4,586,110	5,752,112	6,912,962	8,602,895	8,518,603	.....
Pennsylvania	10,579,127	11,272,323	12,790,668	16,506,284	15,539,728	.....
Tennessee	372,692	397,569	177,729	355,374	369,961	.....
Virginia	510,210	444,976	251,346	399,885	520,311	.....
LEAD (short tons):						
Colorado	56,638	38,542	32,352	33,046	29,327	.....
Idaho	99,027	109,951	160,680	170,059	174,045	.....
Missouri	104,058 ³	161,659	195,634	178,253	218,197	.....
Utah	44,996	60,605	106,105	111,789	82,081	.....
Wisconsin .....	.....	3,909	2,632	3,121	2,930	.....
SILVER (fine ounces):						
Arizona	2,605,700	2,655,700	5,665,672	6,680,252	6,962,257	6,771,490
California	1,082,000	1,791,600	1,689,924	1,936,910	2,107,107	1,555,417
Colorado	12,942,800	8,523,000	7,199,745	7,551,761	7,291,495	6,982,313
Idaho	8,125,600	7,027,000	13,042,466	11,570,399	11,402,542	10,188,056
Michigan	253,000	262,200	581,874	759,068	684,225	491,939
Montana	13,454,700	12,282,900	14,423,173	14,046,054	14,555,034	15,341,793
Nevada	5,863,500	12,366,000	14,453,085	13,682,067	11,217,654	10,113,405
New Mexico	354,900	779,000	2,337,064	1,729,917	1,535,807	763,758
South Dakota	179,000	120,000	197,569	210,100	190,382	165,865
Texas	417,200	364,400	724,580	664,319	587,945	612,436
Utah	10,319,800	10,445,900	13,073,471	13,545,802	13,360,905	13,439,811
Washington	119,400	204,900	213,877	294,516	266,112	342,300
ZINC (short tons): ¹						
Colorado .....	.....	38,545	52,297	67,143	59,100	.....
Kansas .....	.....	13,229	14,365	12,448	20,249	.....
Missouri .....	.....	128,589	136,300	155,960	132,918	.....
Montana .....	.....	15,819	93,573	114,630	93,130	.....
New Jersey .....	.....	68,678	116,618	110,698	119,731	.....
Utah .....	.....	8,184	12,146	14,786	10,643	.....
Wisconsin .....	.....	25,927	41,403	56,803	59,742	.....

¹ Recoverable zinc content of ore mined. ² Includes New Jersey. ³ Includes production of entire Mississippi Valley.

XVII. THE MINERAL INDUSTRIES

MINERAL PRODUCTION BY STATES, 1905-18—Continued

	1905	1910	1915	1916	1917	1918
NON-METALS :						
PORTLAND CEMENT						
(bbl.) :						
California	1,225,429	5,805,098	4,503,306	5,332,860	5,653,362	4,354,074
Illinois	1,545,500	4,459,450	1,156,869	3,642,563	4,659,990	3,594,038
Indiana	3,127,042	7,219,199	8,145,401	10,050,433	8,705,831	5,291,851
Iowa .....	.....	.....	4,559,630	4,703,213	4,626,141	3,626,455
Kansas	230,686	5,655,808	3,580,287	4,212,010	4,015,169	2,499,772
Michigan	2,773,283	3,687,719	4,765,294	4,919,023	4,688,899	3,554,823
Missouri	3,879,542	4,455,589	4,626,771	5,178,021	5,882,240	4,738,596
New Jersey	3,654,777	4,184,698	1,579,173	2,609,617	2,449,876	.....
New York	2,111,411	3,296,350	5,043,889	5,643,677	5,417,530	4,095,588
Pennsylvania	13,813,487	26,675,978	28,648,941	27,323,147	27,752,838	22,628,901
COAL (short tons) :						
Alabama	11,866,069	16,111,462	14,927,937	18,086,197	20,068,074	21,280,000
Arkansas	1,934,673	1,905,958	1,652,106	1,994,915	2,143,579	2,228,000
Colorado	8,826,429	11,973,736	8,624,980	10,484,237	12,483,336	12,485,000
Illinois	38,434,363	45,900,246	58,829,576	66,195,336	86,199,387	91,263,000
Indiana	11,895,252	18,389,815	17,006,152	20,993,528	26,539,329	27,325,000
Iowa	6,798,609	7,928,120	7,614,143	7,260,800	8,965,830	8,240,000
Kansas	6,423,979	4,921,451	6,824,474	6,881,455	7,184,975	7,292,000
Kentucky	8,432,523	14,623,319	21,361,674	25,393,997	27,807,971	29,690,000
Maryland	5,108,539	5,217,125	4,180,477	4,460,046	4,745,924	4,759,000
Michigan	1,473,211	1,534,967	1,156,138	1,180,360	1,374,805	1,385,000
Missouri	3,983,378	2,982,433	3,811,593	4,742,146	5,670,549	5,605,000
Montana	1,643,832	2,920,970	2,789,755	3,632,527	4,226,689	4,276,000
New Mexico	1,649,933	3,508,321	3,817,940	3,793,011	4,000,527	4,241,000
Ohio	25,552,950	34,209,668	22,434,591	34,728,219	40,748,734	46,464,000
Oklahoma	2,924,427	2,646,226	3,693,680	3,608,011	4,386,844	4,785,000
Pennsyl- (Anth. ..	77,659,580	84,485,236	88,995,061	87,578,493	99,611,811	.....
vanias : Bitum. ..	118,413,637	150,521,526	157,955,137	170,295,424	172,448,142	183,712,000
Tennessee	5,766,690	7,121,380	5,730,361	6,137,499	6,194,221	6,916,000
Texas	1,200,684	1,892,176	2,088,908	1,987,503	2,375,815	2,260,000
Utah	1,332,372	2,517,809	3,108,715	3,567,428	4,125,320	5,535,000
Virginia	4,275,271	6,507,997	8,122,596	9,707,474	10,087,091	10,100,000
Washington	2,864,926	3,911,899	2,429,095	3,038,588	4,009,902	4,056,000
West Virginia	37,791,580	61,671,019	77,184,069	86,460,127	86,441,667	91,350,000
Wyoming	5,602,021	7,533,088	6,554,028	7,910,647	8,575,619	9,600,000
COKE (short tons) :						
Alabama	2,576,986	3,249,027	3,071,811	4,298,417	4,892,589	4,352,172
Colorado	1,378,824 ¹	1,346,211 ¹	670,938	1,053,553	1,112,149	.....
Illinois	10,307	1,514,504	1,686,998	2,320,400	2,289,833	2,285,610
New Mexico	89,638	401,646	389,411	502,812	577,679	597,072
Ohio	277,130	282,315	684,658	1,803,268	3,694,302	.....
Pennsylvania	20,573,736	26,315,607	25,622,862	31,279,695	27,912,025	26,273,645
Tennessee	468,092	322,756	256,973	382,175	411,326	427,103
Virginia	1,499,481	1,493,655	629,807	1,242,322	1,304,230	1,234,256
West Virginia	3,400,593	3,803,850	1,391,446	2,521,309	3,349,761	3,320,006
NATURAL GAS						
(values) :						
California	\$133,696	\$476,697	\$4,069,004	\$5,440,227	\$6,816,524	.....
Illinois	7,223	613,642	350,371	396,357	479,072	.....
Indiana	3,094,134	1,473,403	695,380	503,373	453,310	.....
Kansas	2,261,836	7,755,367	4,037,011	4,855,389	5,701,436	.....
New York	623,251	1,678,720	2,335,252	2,524,115	2,499,303	.....
Ohio	5,721,462	8,626,954	17,391,060	15,601,144	18,434,814	.....
Oklahoma	130,137	3,490,704	9,195,804	11,983,774	13,984,656	.....
Pennsylvania	19,197,336	21,057,211	21,139,605	24,344,324	28,716,492	.....
West Virginia	10,075,804	23,816,553	36,424,263	47,603,396	57,389,161	.....
PETROLEUM (bbl) :						
California	33,427,473	73,010,560	86,591,535	90,951,936	93,877,549	.....
Colorado	376,238	239,794	208,475	197,235	121,231	.....
Illinois	181,084	33,143,362	19,041,695	17,714,235	15,776,860	.....
Indiana	10,964,247	2,159,725	875,758	769,036	759,432	.....
Kansas	12,013,493 ²	1,128,668	2,823,487	8,738,077	36,536,125	.....
Louisiana	8,910,416	6,841,395	18,191,539	15,248,138	11,392,201	.....
New York	1,117,582	1,053,838	887,778	874,087	879,685	.....
Ohio	16,346,660	9,916,370	7,825,326	7,744,511	7,750,540	.....
Oklahoma .....	.....	52,028,718	97,915,243	107,071,715	107,507,471	.....
Pennsylvania	10,437,195	8,794,662	7,838,705	7,592,394	7,733,200	.....
Texas	28,136,189	8,899,266	24,942,701	27,644,605	32,413,287	.....
West Virginia	11,578,110	11,753,071	9,264,798	8,731,184	8,379,285	.....

¹ Includes production of Utah. ² Included with figures for Kansas. ³ Includes production of Oklahoma.

XVII. THE MINERAL INDUSTRIES

IMPORTS AND EXPORTS OF MINERAL PRODUCTS, 1905-19

(U. S. Statistical Abstract)

(000 omitted)

	1905	1910	1914	1915	1916	1917	1918	1919
IMPORTS:								
Aluminum .....	.....	.....	\$4,148	\$2,999	\$1,977	\$602	\$530	\$2,322
Antimony (ore and metal)	\$363	\$551	696	1,420	8,039	3,222	4,435	2,263
Asbestos, unmanufactured	706	1,122	1,678	1,513	2,625	3,945	5,385	6,504
Manufactures of	53	269	391	230	170	68	40	107
Bismuth	305	316	.....	.....	.....	196	.....	.....
Cement	1,276	602	160	132	9	20	37	63
Clays or earths	1,272	2,076	2,246	1,983	1,705	1,542	1,651	1,862
Coal	3,906	4,469	3,700	4,179	4,866	4,157	6,195	5,929
Coke	835	521	537	398	290	134	219	166
Copper: in ore, matte, etc.	4,892	9,272	13,696	11,228	22,851	32,576	33,091	29,643
In pigs, ingots, etc.	19,942	30,938	40,809	20,432	52,927	93,703	89,222	84,797
Emery and other abrasives	309	473	.....	.....	.....	1,760	2,441	2,325
Gold	53,648	43,339	66,538	171,568	494,009	977,176	124,413	62,364
Iron and Steel:								
Iron ore	1,670	6,763	6,984	3,823	4,618	3,991	3,116	3,570
Pig-iron, including ferro-silicon	2,989	6,239	1,782	4,235	7,424	9,942	6,536	4,940
Scrap iron and steel	174	1,507	346	281	1,012	2,396	1,255	1,808
Manufactures of	20,346	33,213	26,550	13,222	13,957	15,683	17,280	17,559
Lead ore and base bullion	3,616	3,643	1,987	2,574	3,358	5,043	10,818	7,309
Pig and manufactured	296	279	69	91	578	555	1,153	101
Manganese, ore and oxide	1,661	1,592	1,841	1,494	5,358	10,546	11,945	16,326
Marble and manufactures	1,308	1,552	1,335	894	729	659	422	289
Nickel ore and matte	1,205	3,618	6,109	5,074	9,520	9,971	9,120	9,747
Oils, mineral	494	610	13,661	9,790	12,512	17,840	21,926	28,613
Phosphates, crude	750	152	.....	.....	.....	.....	.....	.....
Plaster rock	361	426	.....	.....	.....	385	256	199
Platinum	1,959	3,345	3,975	1,630	4,256	2,118	4,575	4,056
Salt	496	395	423	391	330	335	307	208
Silver	27,484	45,217	30,326	29,110	34,154	35,004	70,328	78,825
Sulphur ore	1,694	2,626	3,695	4,107	7,121	5,856	4,522	2,018
Talc	47	115	.....	.....	.....	298	266	208
Tin	23,378	30,869	39,422	30,777	50,877	54,996	74,543	65,286
Zinc ore	229	1,139	251	1,818	10,425	7,597	2,499	719
Manufactures of	60	870	364	272	523	191	60	6
EXPORTS:								
Aluminum and manufactures of	175	666	1,101	3,245	5,644	20,300	11,200	7,512
Asbestos and manufactures of	234	312	692	535	1,028	1,524	2,230	3,370
Asphaltum and manufactures of	291	702	1,493	1,016	1,341	1,267	1,087	1,403
Cement	1,481	2,292	3,381	3,241	3,777	4,111	5,897	1,703
Coal	29,158	40,512	59,921	55,906	65,958	83,135	111,825	106,998
Coke	2,228	3,077	2,789	2,304	3,779	6,280	10,155	8,499
Copper, ore and matte	1,338	1,304	3,257	220	726	1,760	1,202	395
Manufactures of	86,225	88,004	146,222	99,558	173,946	322,535	269,547	144,350
Emery and corundum	347	872	2,114	1,802	3,333	6,069	6,469	5,864
Gold	92,594	118,563	112,038	146,224	90,249	291,921	190,852	116,776
Graphite	43	302	656	520	832	1,460	1,048	965
Iron and Steel								
Iron ore	581	1,637	3,401	1,277	2,797	3,284	4,877	5,970
Pig iron	828	1,353	2,859	2,071	5,847	24,770	15,702	13,483
Scrap iron and steel	270	281	841	359	2,537	4,780	637	158
Manufactures of	133,630	177,497	247,779	247,774	601,057	1,133,746	1,124,999	1,064,974
Lead, manufactures of	499	481	2,610	9,045	13,823	16,560	19,088	12,580
Marble and Stone:								
Unmanufactured	227	413	676	443	364	459	594	664
Manufactures of	1,055	1,034	1,470	831	968	1,423	1,291	1,740
Nickel, nickel oxide and matte	3,196	4,532	9,403	11,110	9,876	12,271	7,681	3,988
Manufactures of	97	80	71	493	2,590	1,894	999	3,328
Oils, mineral	79,793	99,090	152,174	133,693	166,417	230,969	298,300	344,613
Phosphate rock	6,886	7,454	10,617	1,742	1,763	993	830	1,493
Plaster	16	6	283	189	187	142	150	186
Platinum	10	43	.....	.....	.....	285	84	40
Quicksilver	653	256	32	15	274	1,071	670	671
Salt	190	286	542	616	601	727	1,417	1,512
Silver	48,848	55,286	54,965	50,942	59,792	78,280	139,181	301,175
Tin, scrap	29	64	.....	.....	.....	.....	.....	.....
Manufactures of	721	879	1,477	1,786	2,890	5,411	.....	.....
Zinc, ore and dross	1,765	881	588	695	177	889	2,249	1,930
Manufactures of	1,319	196	406	21,243	45,867	65,495	31,574	24,570

XVIII. MANUFACTURES

STORY B. LADD

General Conditions.—The first half of the year 1919 closed with good progress made toward restoration of pre-war conditions. The general stability was evidenced by the favorable record of failures in manufacturing (see *infra*), which were fewer in number than in nearly four decades for the same period. There was less than the usual mid-year halting of activities, and in some lines in which revival from repression of the war had been tardy, as in iron and steel, the rate of production rose steadily. With manufacturing facilities more completely engaged than at any time since the lull that followed the armistice, the element of labor shortage was the restraining factor. In the iron and steel industry, after an unbroken decline in the daily production rate from the high level of 113,942 tons of pig iron for September, 1918, the low output per day for May of 68,002 tons was followed by a recovery reaching 88,496 tons per day in August, when the upward sweep was checked by the steel strike (see XV, *Labor*). The trade in leather and footwear continued active, and the demand made it unnecessary for the manufacturers to solicit orders. In dry goods not only were customers willing and able to meet the extreme prices, but wants were larger than a year before. The high wages in manufacturing centers were reflected in a broad movement of merchandise. Prices were higher at the mid-year than at the beginning. The demands of peace times, augmented by the widening of international channels of commerce, proved greater than during the war period in not a few branches of business, and shortage of goods and sharply rising prices were again conspicuous features. The conviction that high prices were to continue indefinitely caused the release of much business that had been deferred in expectation of concessions. Be-

cause of inability of selling agents to make early deliveries, manufacturers were forced in many cases to allot outputs. Not a few salesmen were recalled from the road as producers could not accept any more business. Production, however, was far from capacity volume, owing to the short hours prevailing and the difficulty of securing all the help required. Unfilled orders accumulated with the broadening of demands. In textiles most of the mills were forced to allot their production for the spring of 1920 in order to give their regular customers an even chance and to protect them against speculators in cloth. Dress-goods agents received more requests for staple dress goods than they could supply. The demand for export was strong at good prices. Silk mills continued active, and buyers settled down to a period of waiting to see what the mills could do in giving better deliveries.

In August a new uncertainty entered into the prospect for the remainder of the year. Railroad strikes reduced blast-furnace and steel-mill operations in the Chicago and Cleveland districts, and the labor troubles caused the banking of some furnaces (see XV, *Labor*). The country-wide agitation against high prices wrought a change in business. Signs of hesitation appeared in textiles, hides and leather, and some other leading lines, and buying was checked by the steel strike in October (see *ibid.*). Another factor in the situation was the uncertainty of fuel prices with the coal strike impending on Nov. 1. (See also XII, *Economic Conditions*.)

Industrial Failures.—The industrial and mercantile failures for the first half of the year numbered 3,463, with liabilities aggregating \$68,710,886, as compared with 5,889 failures for the same period in 1918 and liabilities aggregating \$87,793,562, a de-

XVIII. MANUFACTURES

FAILURES IN MANUFACTURING, FIRST HALF-YEARS, 1914, 1918, AND 1919

Industry	Number			Liabilities		
	1914	1918	1919	1914	1918	1919
Woolens, carpets, and knit goods..	20	3	5	\$560,045	\$32,909	\$74,001
Paints and oils	17	8	4	252,869	51,251	86,100
Hats, gloves, and furs	66	19	16	960,689	245,086	162,150
Printing and engraving	106	88	35	2,207,436	1,594,245	435,023
Leather, shoes, and harness	62	47	29	749,635	1,259,490	541,241
Liquors and tobacco	45	41	27	1,041,010	4,255,440	598,096
Chemicals and drugs	22	23	24	219,404	251,621	842,355
Cottons, lace, and hosiery	23	18	13	923,118	255,581	1,011,028
Glass, earthenware, and brick	63	45	28	2,683,334	1,651,655	1,133,013
Milling and bakers	116	117	63	1,394,260	933,800	1,143,426
Iron, foundries, and nails	33	17	11	1,633,211	170,315	1,150,594
Clothing and millinery	355	194	108	3,511,825	2,200,203	1,229,775
Lumber, carpenters, and coopers...	235	179	127	13,387,762	3,799,160	2,592,387
Machinery and tools	118	96	96	5,816,479	3,824,211	7,260,470
All other	832	683	430	25,606,073	14,569,002	14,643,856
Total	2,113	1,578	1,016	\$60,977,145	\$35,093,969	\$32,903,515

crease of 41.2 per cent. in number and of 21.7 per cent. in amount. Only in some of the south-central states did the number of failure and the liabilities for the half-year of 1919 equal those of 1918. In the west-central states there was a decrease in liabilities of 57 per cent.; in the New England states, 40; middle Atlantic, 25; western, 12; east-central, 11; Pacific, eight; and south Atlantic, five per cent. (See also XII, *Economic Conditions*.)

In manufactures the showing is equally favorable. The following statement gives the data of manufacturing failures by quarters for 1918 and the first three quarters of 1919:

	Number		Liabilities	
	1918	1919	1918	1919
1st quarter..	852	537	\$18,988,718	\$15,239,195
2d quarter..	726	479	16,105,251	17,664,320
3d quarter..	606	409	16,261,940	8,584,209
4th quarter..	582	440	22,025,785	10,136,492
Total	2,766	1,865	\$73,381,694	\$51,614,216

Defaults on the part of manufacturing establishments for the first six months numbered but 1,016, as compared with 1,578 for the same period in 1918, 1,888 in 1917, and 2,113 in 1914; and the liabilities involved \$32,903,515 for the first half of 1919, against \$35,093,969 for the same period in 1918, \$40,440,908 in 1917, and \$60,977,145 in 1914. The accompanying table gives the statistics of

failures of manufacturers for the first half of 1919, 1918, and 1914, distributed by industries.

Exports of Manufactures.—The domestic exports for the fiscal year ending June 30, 1919, were valued at \$7,074,011,529, of which 72.4 per cent. were goods wholly or partly manufactured. For the fiscal year 1918 the exports amounted to \$5,838,652,057, of which 77.8 per cent. were wholly or partly manufactured, and in 1914, the year preceding the war, they amounted to \$2,329,684,025, with 59.8 per cent. wholly or partly manufactured. The exports of manufactured or partly manufactured goods for the fiscal year 1919 exceeded those for 1918 by \$582,000,000, or 13 per cent., with the increase quite generally distributed. The accompanying table shows imports of crude materials for use in manufacturing for 1914, 1917, 1918, and 1919, fiscal years, and the exports of partly or wholly manufactured goods for the same years.

The exports of textiles, cotton, silk, and wool, increased 389 per cent. as compared with 1914; iron and steel manufactures, 323 per cent.; chemicals, 447 per cent.; automobiles and parts, 250 per cent.; and electrical machinery, 222 per cent., these being some of the leading lines. Higher prices, of course, have helped to swell the figures, but in some lines largely dependent upon imported raw materials the imports show an increase for 1919 over 1918. Thus, the importation of hides and skins in 1919 was in

IMPORTS OF MATERIALS FOR MANUFACTURE AND EXPORTS OF MANUFACTURES, 1914-19

	1914	1917	1918	1919	Per cent. of Increase, 1914-1919	Per cent. of Total, 1919
Imports, total	\$632,865,860	\$1,109,704,565	\$1,230,252,430	\$1,250,715,064	98	100.0
Fibres, flax, hemp, sisal, etc., tons.....	418,432	408,618	389,853	340,003	419	8.3
Gums	\$54,349,995	\$67,709,758	\$109,042,470	\$103,872,080	91	1.7
Hides and skins, pounds	\$12,741,609	\$21,510,283	\$21,685,638	\$21,786,997	71	
India rubber, pounds	\$61,070,686	700,207,497	432,516,693	448,141,726	420	11.9
Nitrate of soda, tons	\$120,289,781	\$216,363,609	\$131,628,352	\$149,288,544	24	
Potash, pounds	131,395,742	333,373,711	389,599,015	402,471,531	205	
Silk, raw, pounds	\$71,219,851	\$189,328,674	\$202,800,392	\$157,928,132	122	12.6
Wool, pounds	564,049	1,261,659	1,607,020	1,346,679	139	
Other crude materials for manufacture	\$17,950,786	\$44,231,240	\$70,129,026	\$68,229,548	280	5.5
Exports, total	\$39,184,884	\$15,940,446	\$25,106,686	\$37,192,069	45	
Airplanes and parts	\$1,707,739	\$1,773,197	\$4,977,409	\$2,022,320	18	0.2
Agricultural implements	28,594,672	33,868,885	34,846,197	34,321,030	20	
Automobiles and parts	\$97,828,243	\$186,085,649	\$183,076,241	\$202,613,259	107	16.2
Cars and other vehicles	247,648,899	372,372,218	379,129,934	422,414,664	71	
Chemicals, etc.	\$53,190,767	\$131,137,170	\$198,545,911	\$224,410,062	322	18.0
Cotton, manufactures of	\$203,587,099	\$281,564,985	\$308,366,991	\$320,534,122	57	25.6
Electrical machinery, etc.	\$1,392,350,546	\$4,871,635,272	\$4,540,562,104	\$5,122,756,728	268	100.0
Explosives	\$226,149	\$4,135,445	\$9,084,097	\$12,861,401	5,600	0.3
Flour, wheat, barrels	31,965,789	26,552,986	35,076,911	42,662,724	33	0.8
Glass and glassware	33,198,806	118,377,047	110,138,831	116,266,550	250	2.3
Iron and steel, manufactures of	18,251,267	44,031,172	37,954,020	69,063,909	278	1.3
Leather and manufactures of	27,079,092	187,890,822	180,318,954	148,051,419	447	2.9
Oil, mineral, refined, gallons	51,467,233	136,299,842	169,378,223	232,680,723	352	4.5
Oils, vegetable	25,060,844	51,903,823	54,546,961	80,712,310	222	1.6
Paints, colors and varnishes	6,272,197	802,789,437	373,890,863	122,730,877	1,860	2.4
Paper	11,821,461	1,942,778	21,879,951	24,190,092	105	
Photographic goods	\$54,454,175	\$93,198,474	\$244,861,140	\$268,062,907	392	5.2
Rubber, manufactures of	3,729,623	13,554,530	14,012,756	21,898,185	487	0.4
Silk, manufactures of	251,480,677	1,133,746,188	1,124,999,211	1,064,974,299	323	20.8
Tobacco, manufactures of	57,466,261	153,709,573	100,880,843	182,908,949	218	3.6
Wool, manufactures of	2,135,133,723	2,570,579,553	2,491,966,554	2,367,478,286	11	
Other manufactures	\$145,361,384	\$223,688,950	\$289,040,070	\$334,707,619	130	6.5
	16,251,486	26,280,134	25,190,982	58,891,504	262	1.2
	7,256,318	15,041,500	16,894,154	23,227,108	220	0.5
	20,663,634	43,152,980	50,031,686	84,073,264	307	1.6
	9,431,800	14,322,188	12,290,317	16,943,127	80	0.3
	12,441,220	31,105,075	33,343,181	43,856,588	253	0.9
	2,307,605	7,216,057	12,140,750	22,354,895	869	0.4
	7,489,811	15,534,438	21,713,571	35,304,498	371	0.7
	4,790,087	18,423,556	17,749,821	31,247,222	562	0.6
	605,705,088	1,710,711,055	1,607,024,762	2,109,276,650	248	41.2

d = decrease.

quantity 3.6 per cent. in excess of 1918; rubber, 3.3 per cent.; wool, 11.4 per cent.; and potash, 48 per cent.

Average values deduced from export figures give a line on price movements. Thus, the unit-ton value of the exports of 340,584 tons of structural iron and steel for the fiscal year 1919 was \$84.27, as compared with \$99.11 (exports, 240,384 tons) for 1918, and \$42.30 (exports, 296,282 tons) for 1914. Cotton cloths averaged 23 cents per yard (570,000,000 yd.) in 1919, 15 cents in 1918, 10½ cents in 1917, and seven cents in 1914. Window glass was \$6.67 per box in 1919 (908,962 boxes), as compared with \$4.73 per box in 1918 and \$2.95 in 1915. Boots and shoes were \$3.03 per pair (16,687,454 pairs) in 1919, \$2.43 in 1918, and \$1.80 in 1914. Refined mineral oils were 14 cents per gallon in 1919, 11.6 cents in 1918, and 6.8 cents in 1914. In the case of flour, the exports (24,190,092 bbl. in 1919) averaged \$11.08 per barrel, in comparison with \$11.19 in 1918 and \$4.67 in 1914. Wheat exports in 1919 averaged \$2.38 per bushel, as compared with \$2.37 in 1918 and 95 cents in 1914; corn, \$1.60 per bushel in 1919, \$1.84 in 1918, and 75 cents in 1914; and bacon, 30½ cents per pound in 1919, 27 cents in 1918, and 13½ cents in 1914. These figures show increases in unit values for 1919 as compared with 1914 of 229 per cent. for cotton cloths, 129 per cent. for window glass, 108 per cent. for refined mineral oils, 99 per cent. for structural iron and steel, 68 per cent. for boots and shoes, and for food stuffs: wheat, 151 per cent.; flour, 137 per cent.; bacon, 129 per cent., and corn, 113 per cent. (See also XII, *Economic Conditions*.)

Cotton.—Measured by the capital invested, number of persons employed, and quantity and value of the product, cotton is the most important of the textile manufactures. The supply of cotton in the United States for the year ending July 31, 1919, amounted to 17,098,439 running bales, including 1,403,332 bales of linters, as compared with 16,076,558 bales in 1918, 16,608,048 bales in 1917, and 16,972,895 bales in 1916. Thirty-seven per cent. of the total supply for 1919 was consumed in the United States, 36 per cent. was exported, and 27 per cent. remained in

the country at the close of the year. Since 1914, when it was the lowest recorded since 1898, the price of cotton has been rising rapidly. The following statement shows the quotations for middling upland in cents per pound on or about Oct. 12 since 1914:

	New York	New Orleans	Liverpool
1919	33.90	34.37	42.52
1918	30.75	32.60	48.12
1917	27.65	26¼	39.44
1916	17.55	16½	20.54
1915	12.50	12	14.38
1914	Nom.	61¼/16	10.60

The stock of cotton on hand on Aug. 1 (5,155,682 bales) was the largest quantity ever carried over into a new year in the United States, exceeding the carry-over in 1915, the next largest, by 830,792 bales. The consumption for 1919, although larger than for any pre-war year, was nearly a million and a half bales short of the preceding year, when the requirements for military purposes were at their height. As was pointed out in the *YEAR BOOK* for 1917 (p. 495), linters now enter into many lines of manufacture that otherwise would use cotton, notably the manufacture of explosives.

Although there has been a decided increase in the quantity of cotton ginned during the last 10 years, there is a general tendency to construct larger and better equipped establishments, and the number of ginneries has been decreasing; 19,259 ginning establishments were operated for the crop of 1919, as compared with 24,547 for the crop of 1914.

Of the 6,223,837 bales of cotton, including linters, consumed in the United States, probably more than 90 per cent. was used in the manufacture of fabrics, the remainder being used in the manufacture of explosives, mattresses, and medicinal cotton and for miscellaneous purposes. The spindle is to a degree the unit of measurement of the consumption of cotton in the manufacture of fabrics. In 1919 the equipment of the cotton mills of the United States comprised 35,443,156 spindles, as compared with 32,774,012 in 1914 and 28,573,435 in 1909, an increase of 2,669,144, or 8.1

per cent., with respect to 1914, and 24.0 per cent. over 1909, a period of only 10 years. A number of the spindles are idle during each year; during 1919 there were 34,930,934 active spindles, while 512,222 were idle continuously throughout the year.

The year as a whole was a very successful one for the industry. The steady payment of regular and extra dividends by many mills indicated the continued prosperity of the mills, following the period of uncertainty after the beginning of the war. The exports of manufactures of cotton for the fiscal year 1919 amounted to \$232,680,723, as compared with \$169,-

378,223 for 1918 and \$136,299,842 for 1917, the growth being chiefly on account of increase in prices and not of increased volume.

Wool.—With the cessation of war requirements a large proportion of the wool machinery of the country became idle. It was not until March, 1919, that conditions improved, but the improvement was then progressive and rapid, until in October less than eight per cent. of the woolen and worsted spindles were idle. The following table shows by months from January to December the percentage of wool machinery in operation and reflects the condition of the industry:

WOOL MACHINERY IN OPERATION, 1919

	Cards	Combs	Spinning spindles		Looms		
			Woolen	Worsted	Wide	Narrow	Carpet and Rug
January 2	67.8	69.3	63.5	62.5	59.7	67.4	34.21
February 1	61.3	60.2	58.9	51.4	47.7	58.5	34.4
March 1	60.91	52.21	58.21	47.31	41.91	57.61	38.6
April 1	73.5	65.8	71.6	63.9	51.6	61.1	42.9
May 1	82.9	77.5	83.2	74.2	63.4	67.1	51.1
June 2	84.6	87.2	84.8	78.9	70.4	73.4	55.5
July 1	90.3	92.4	91.1	86.5	78.0	74.0	61.4
August 1	90.6	93.5	91.1	89.1	77.9	75.1	64.5
September 2	91.9	94.5	92.1	87.2	80.1	77.2	62.8
October 1	91.8	94.1	92.3	92.8	84.0	79.3	65.9
November 1	92.4	94.7	93.3	93.3	85.2	86.8	65.5
December 1	89.5	94.7	91.6	93.8	86.1	80.9	66.5

1 *Italic* indicates minimum month.

Leather.—During the year the boot and shoe industry of the United States has been passing through a critical period, contributing factors being the war, the labor problem, and the shortage and advance in price of all materials entering into the manufacture of boots and shoes. In consequence the industry is confronted with an interesting problem from the raw material to the completed product. The bark supply in this country is almost exhausted. Tanning materials must be imported from South America, Austria, Africa, Asia, and Europe. Hides and skins to keep the tanneries operating must come from the furthest corners of the world. Labor has demanded not only higher wages but shorter hours, so that the machines stand idle hours each day during which formerly they were turning out shoes. In consequence leather and boots and shoes have advanced to prices unparalleled in the history of

the industry. The maximum producing capacity of the shoe factories is 1,751,475 pairs per day, or 525,000,000 pairs per annum on a 300 working-day basis. It is reported that the factories have been operating at 60 to 65 per cent. of capacity, indicating an annual production of approximately 325,000,000 pairs for 1919. The production in 1914 was 250,165,000 pairs. The leading states, ranked according to capacity, are the following:

	Capacity, pairs per day	Per cent.
Total	1,751,475	100.0
Massachusetts ...	587,553	33.6
New York	295,570	16.9
Missouri	201,050	11.5
Pennsylvania	118,581	6.8
New Hampshire .	112,142	6.4
Ohio	107,180	6.1
Maine	85,410	4.9
Wisconsin	60,415	3.4
Illinois	60,345	3.4
New Jersey	32,195	1.8
Other states	91,034	5.2

XVIII. MANUFACTURES

Chemical Industries.—Of all the industries stimulated by war activities none has shown more rapid progress than dyestuffs. Prior to the war dependence was on imports, but five concerns making coal-tar colors. There were 190 establishments engaged in the manufacture of coal-tar products in 1918 and 216 in 1919. The figures for production of finished coal-tar products and intermediates by chief classes are given in the following table for 1918, with comparison of the totals with 1917.

COAL-TAR PRODUCTS, 1917-18

	Pounds	Value	Value per Pound
FINISHED COAL-TAR PRODUCTS .....1918	76,802,959	\$83,815,746	\$1.09
.....1917	54,550,107	68,790,856	1.26
.....Increase, per cent.	40.8	21.8	
1918:			
Dyes	58,464,446	62,026,390	1.07
Lakes	9,590,537	5,020,023	0.52
Photographic chemicals	316,749	823,915	2.60
Medicinals	3,623,352	7,792,984	2.15
Flavors	458,256	4,925,627	10.75
Perfume materials	116,263	584,695	5.03
Synthetic phenolic resins and tanning materials	4,233,356	2,642,112	0.62
INTERMEDIATES .....1918	357,662,251	\$124,382,892	\$0.35
.....1917	322,745,858	106,966,750	0.33
.....Increase, per cent.	10.8	16.3	
1918:			
Acetanilid	2,085,088	1,106,546	0.53
Anilin oil	24,102,129	6,572,684	0.27
Chlorbenzol (mono)	20,530,639	3,614,866	0.18
Dimethylanilin	4,263,458	2,412,820	0.57
Naphthaline (79° C. +)	28,112,165	2,162,618	0.08
b-Naphthol (U. S. P. and tech.)	5,254,637	3,101,750	0.59
Nitrobenzol	38,250,332	5,659,991	0.15
Phenol (U. S. P. and tech.)	106,794,277	37,270,284	0.35
Salicylic acid (U. S. P. and tech.)	4,666,092	3,505,508	0.75
Other acids	4,895,999	7,233,715	1.48
Other intermediates	118,707,435	51,742,110	0.44

The potash industry is another chemical line of special interest. The normal pre-war consumption may be taken as 270,000 net tons of actual potash (K_2O), of which 99 per cent. was imported from Germany. Our production derived from brine, kelp, distillery waste, and other sources, which had reached 9,720 tons in 1916, was 52,135 tons in 1918. The figures by source are as follows for 1916, 1917, and 1918, in net tons of available K_2O :

Source	1916	1917	1918
Total	9,720	32,573	52,135
Natural brines ..	3,994	20,652	39,255
Kelp	1,556	3,572	4,292
Molasses distillery waste ...	1,845	2,846	3,322
Alunite	1,8501	2,402	2,619
Dust from cement mills ..	...	1,621	1,429
Other sources ..	475	1,480	1,148

1 Includes furnace dust.

The potash (K_2O) content of the salts imported for consumption was

7,885 net tons in 1916 and 8,100 tons in 1917. The imports in 1916 constituted 45 per cent. of production and imports combined, and in 1917 20 per cent. (See also XXIII, *Agricultural Chemistry, and Industrial Chemistry.*)

The Chemical Foundation, Inc., organized to take over and hold for the chemical industries and the country at large the "German-owned" United States chemical and allied patents, is a development calculated to be of considerable importance to manufacturers of chemicals. The corporation is capitalized at \$500,000, of which \$400,000 is in preferred stock and \$100,000 in common stock. The Alien Property Custodian sold to the Foundation for the sum of \$250,000 substantially all of the German dye and chemical patents seized and taken over under the Trading-with-the-Enemy Act, except those included in the sale of the Bayer Co., Inc., which sale took place before the organization of the Foundation. The patents ac-

quired by the Foundation cover a wide field, including metallurgy, fertilizers, fixation of atmospheric nitrogen, hydrogenation of oils, etc., and number approximately 4,500. They include many German patents of 1917 and even of 1918 and many applications still pending. The stock of the Bayer Co., Inc., and of the Synthetic Products Co., a corporation organized to conceal the profits of the Bayer Co., was sold at public auction by the Alien Property Custodian to the Sterling Products Co., for \$5,310,000 plus back taxes and other obligations. The patents of the German house, Bayer Co., Inc., thus acquired number approximately 1,200. In addition to the patents, the enemy trademarks taken over by the Alien Property Custodian have been sold to the Foundation, and also the German copyrights covering some of the indispensable literature of science.

The charter of the Foundation provides that surplus income from license fees after paying a dividend of six per cent. is to be used for the retirement of preferred stock and thereafter for the advancement of chemical and allied sciences and industries. The stock was underwritten by members of the Dye Institute, each taking his

proper share, and is to be distributed among the dye producers and eventually among the consumers. It is the intention that ultimately no one will own more than \$1,000 worth of stock, \$800 preferred and \$200 common. The Foundation proposes to license any competently equipped, patriotic American individual, firm, or corporation with such patents as with the help and encouragement of the Foundation may be utilized.

Shipbuilding.—On July 1, 1919, the American merchant marine consisted of 27,300 vessels of 12,800,000 gross tons, exclusive of 66 ocean steamships of 405,000 gross tons temporarily employed as transports and troopships. The growth has been in ships of a size and type adapted to ocean service. Whereas in June, 1914, our sea-going merchant ships of 1,000 gross tons or over numbered 755 of 2,128,731 gross tons, on June 30, 1918, there were 2,058 of 7,300,022 gross tons, or a net gain in ocean vessels of more than 5,000,000 tons. The built vessels for the fiscal year ending June 30, 1919, number 1,953, of 3,326,621 gross tons. Comparative figures for the fiscal years 1917, 1918, and 1919 are as follows (see also XIX, *Merchant Marine*):

SHIPBUILDING, 1917-1919

	1917		1918		1919	
	Number	Gross Tons	Number	Gross Tons	Number	Gross Tons
Total vessels built	1,297	664,479	1,528	1,300,868	1,953	3,326,621
On the seaboard	993	518,958	1,225	1,080,437	1,529	2,815,733
On the Great Lakes..	147	139,336	168	215,022	317	507,172
On the Mississippi River, etc.	157	6,185	135	5,409	107	3,716
Steam	192	461,320	309	1,000,318	891	3,107,064
Gas	609	51,923	620	90,678	633	50,027
Sailing	64	43,185	115	83,629	84	79,234
Barges and canal boats	432	108,051	484	126,243	345	90,296

During the first eight months of 1919 keels were laid for 543 vessels; 789 of 4,106,068 deadweight tons were launched, and 741 were delivered. The figures by months and for steel, wood, and composite and concrete vessels are given on the following page (see also XX, *Naval Architecture*).

The shipyards employed an average of 40,506 wage earners in 1909, 44,489 in 1914, 72,497 in 1916; in January, 1919, there were 303,722 shipbuilders

on the payrolls of the shipyards with an average attendance of 253,133. The table on the following page shows the employees in the shipbuilding industry for January to July, inclusive, 1919, by classes.

The average number of employees of all classes was 355,930 in January, 1919, an increase of 67.6 per cent. over the same month of 1918, and 322,281 in July, 1919, as compared with 379,879 in July, 1918. The average monthly figures, January to July, for

XVIII. MANUFACTURES

NUMBER, TYPES, AND TONNAGE OF SHIPS BUILT, 1919

	Keels Laid		Launchings		Deliveries	
	Number	Dead-weight Tonnage	Number	Dead-weight Tonnage	Number	Dead-weight Tonnage
STEEL:						
January	51	339,308	36	214,725	16	123,000
February	53	326,825	52	320,695	27	194,900
March	72	462,593	68	420,358	31	204,025
April	82	542,501	73	448,916	78	435,870
May	84	625,103	87	563,858	89	611,600
June	66	493,575	65	420,400	71	419,358
July	76	495,900	83	548,058	72	490,508
August	43	300,425	71	432,158	69	472,750
Total steel	257	3,586,230	535	3,369,168	453	2,952,011
WOOD:						
January	3	Tugs	27	89,500	8	29,900
February	4	"	15	45,450	10	35,400
March	3	"	22	64,250	11	42,050
April	2	"	42	133,850	35	127,250
May	1	"	51	148,650	54	199,250
June	1	"	34	83,800	51	179,500
July .....	...	....	30	75,800	60	210,300
August .....	...	....	23	48,600	49	169,850
Total wood	14	....	244	689,900	278	993,500
COMPOSITE AND CONCRETE:						
January .....	...	....	...	....	1	3,500
February .....	...	....	2	7,000	2	7,000
April .....	...	....	2	7,000	1	3,500
May .....	...	....	31	14,500 ¹	2	7,000
June	12	7,500	12	7,500	1	3,500
July	12	7,500	12	3,500	1	3,500
August .....	...	....	12	7,500	2	7,000
Total c. and c..	2	15,000	10	47,000	10	35,000

1 Includes one 3,500-ton composite and two of 11,000 tons concrete. 2 Concrete.

EMPLOYEES IN SHIPYARDS, 1919

	Employees on Payroll						Total Shipbuilders	
	Total	Office Em- ployees and Others	Plant Con- struc- tion	Shipbuilders on				
				E.F.C.1 Work	Navy Work	Other and Repair Work	On Pay- roll	Aver- age Attend- ance
STEEL:								
January ...	352,957	28,454	20,781	243,062	47,749	12,911	303,722	253,133
February 2 .	340,165	26,992	17,222	236,146	48,969	10,836	295,951	249,934
March	358,280	26,659	15,109	255,760	46,390	14,362	316,512	275,291
April	362,189	26,651	10,733	265,390	47,820	11,595	324,805	284,184
May	361,340	25,515	8,654	267,575	42,634	16,962	327,171	293,360
June	352,184	24,510	8,153	264,172	39,536	15,813	319,521	289,873
July	339,654	23,804	8,064	255,585	38,032	14,169	307,786	274,880
WOOD AND COMPOSITE:								
January ...	64,098	4,246	2,263	56,565	....	1,024	57,589	47,053
February ..	55,733	3,854	1,895	49,192	....	792	49,984	42,426
March	43,109	3,391	1,308	37,793	....	617	38,410	23,686
April	29,121	2,480	630	25,730	....	981	26,711	23,762
May	27,344	2,657	426	22,633	....	1,628	24,261	21,871
June	22,103	1,827	175	17,094	....	3,007	20,101	18,241
July	16,749	1,338	153	12,412	....	2,846	15,258	14,042
CONCRETE:								
April	2,371	260	15	2,096	....	....	2,096	1,876
May	3,709	468	48	3,193	....	....	3,193	2,780
June	4,093	442	23	3,628	....	....	3,628	2,970
July	4,002	428	2	3,569	....	3	3,572	3,121

1 Emergency Fleet Corporation. 2 Strike.

XVIII. MANUFACTURES

both years are as follows; in the main the growth has held strong for the steel shipyards, but the wood shipyards have lapsed:

AVERAGE NUMBER OF EMPLOYEES IN SHIPYARDS, 1918-19

	Total		Steel		Wood and Composite	
	1919	1918	1919	1918	1919	1918
January	355,980	212,400	302,868	184,100	53,562	28,300
February	342,323	228,750	294,148	195,250	48,175	23,500
March	355,444	254,750	317,059	213,250	38,385	41,500
April	348,440	284,250	321,568	233,125	26,872	51,125
May	352,483	316,400	327,529	256,800	24,954	59,600
June	342,779	351,000	322,536	281,750	20,243	69,250
July	322,281	379,879	306,748	298,546	15,533	81,333

U. S. Tariff Commission Studies.—

Certain of the manufacturing industries that have been given special study by the U. S. Tariff Commission, other than some before noted, are of interest as indicating important changes in American industry during the war.¹ Cotton venetians have been used in this country since 1902, chiefly as clothing lining, and the estimated consumption grew from 8,000,000 yd. in 1913 to over 35,000,000 yd. in 1917. The domestic manufacture cannot be said to have begun until 1913, and the industry made its greatest stride in 1917 and 1918. In 1918 the monthly imports from Bradford, England, the seat of foreign manufacture, approximated only about two-thirds of the American output. Prior to 1915 chemical glassware was practically all imported, but the industry is now well established in this country. The American output was valued at \$2,865,774 in 1918 (fiscal year), as compared with \$950,309 in 1915. Prior to 1918 there was practically no production of optical glass in the United States. In 1913 (fiscal year) the imports were valued at \$506,594 and in 1914 at \$617,703, the high-water mark. In 1918 the imports were but \$275,295, and the domestic production was growing rapidly, the April output being 28,157 lb. and the October 95,564 lb.

¹ Tariff Information Series (Washington, U. S. Tariff Commission), includes studies of "Cotton Velveteens," "Dyes and Coal-tar Chemicals," "Magnesite Industry," "Optical Glass and Chemical Glassware," "Potash Industry," "Potato-Product Industry," "Pyrites and Sulphur Industry," and "Scientific Instruments."

Census of Manufactures, 1919.—

The scheme of classification of the forthcoming Federal census of manufactures provides for 551 classes and subclasses of manufactures, distributed under 14 major groups as follows:

Chemicals and allied products	41
Food and kindred products	50
Animal	11
Vegetable	33
Iron and steel and their products..	83
Crude	4
Other iron and steel products....	79
Leather and its products	15
Liquors and beverages	8
Lumber and its remanufactures....	29
Metals and metal products other than iron and steel	57
Metals	20
Metal products	35
Related industries	2
Paper and printing	31
Paper	3
Manufactures of paper	10
Printing and publishing	14
Related industries	4
Railroad repair shops	2
Stone, clay, and glass products....	31
Stone as material	12
Clay as material	15
Glass	4
Textiles and their products	69
Fabrics and materials	24
Articles for personal use	27
Other textile products	18
Tobacco manufactures	7
Vehicles for land transportation ...	11
Miscellaneous:	
Musical instruments	5
Shipbuilding	9
Other	103

Total number of classes

The census will include all manufacturing establishments operated dur-

ing any portion of the year 1919 with the exception of (1) those with products valued at less than \$500; (2) custom establishments making to individual order, not for the trade; (3) building operations (erection on the ground); (4) the so-called neighborhood industries and hand trades; (5) small custom feed and gristmills operating for toll or local consumption; (6) retail stores incidentally manufacturing; and (7) manufacturing done in educational, eleemosynary, and penal institutions.

The information to be furnished by all establishments relates to character

of ownership; capital; employees, by class groups, sex and age distribution, and salaries and wages; time in operation and prevailing hours of labor; material expense; rent and taxes; value of products; power and fuel consumption. It does not extend to what is known as miscellaneous expenses other than rent and taxes. In addition to the general schedule covering the foregoing items, there are 84 supplemental schedules furnishing the basis for detail statistics of specific products of manufacture contained in the census reports. Figures will not be available until 1921.

PATENTS AND INVENTION

WALTER F. ROGERS

Patent Legislation.—Practically no patent legislation was enacted during the year 1919 with the exception of a measure increasing the price of patents to 10 cents, notwithstanding the fact that in 1919 over two million copies were sold, bringing a revenue of approximately \$120,000. There are pending in Congress bills to create a Court of Patent Appeals, to provide for a more certain payment of damages in patent causes, to increase the force and the salaries in the Patent Office, and to make an independent bureau of the Patent Office.

The Patent Office.—The figures of the Patent Office are most interesting as indicating both great activity in invention and a marked increase in business. Incomplete figures indicate that there were approximately 75,000 applications in 1919 for mechanical inventions alone, and that applications for the registration of trademarks, labels, and patents numbered approximately 14,000. A curious feature has been that the final fees for taking out patents are practically the same as for the preceding year. This appears to be due to the number

of inventions relating to the war which now have less practical value. There promises to be a surplus of several hundred thousand dollars in 1919 to be added to the fund to the credit of the Patent Office now in the Treasury, amounting to many millions.

The Patent Office is losing the members of its force in converse relation to the increase in its business. In the force of 900 there are 400 examiners. Of these examiners one-fourth resigned in 1919 to accept better paid places in the outside world. Nothing in the Government service requires more consideration and immediate remedy than the drain upon the Patent Office force occasioned by the failure of the Government to pay a sufficient salary to keep in the service the clerks and examiners of experience. Strenuous efforts are being made to remedy this by the Patent Office, members of the bar, and the informed Congressmen. The Court of Appeals of the District of Columbia is more than a year behind in its work due to an insufficient number of judges, thus further aggravating delays in patent proceedings.

XIX. TRADE, TRANSPORTATION, AND COMMUNICATION

EDWARD L. MCKENNA

MERCHANT MARINE

Tonnage Afloat.—*Lloyd's Register* for 1919-20 gives the following comparison of the gross tonnages, both sail and steam, of the world, as of June, 1919 and 1914:

Country	1919	1914
United Kingdom.....	16,345,000	18,892,000
British Dominions...	1,863,000	1,632,000
United States		
Seagoing	9,773,000	2,027,000
Great Lakes	2,160,000	2,260,000
Austria-Hungary ...	713,000	1,052,000
Denmark	631,000	770,000
France	1,962,000	1,922,000
Germany	3,247,000	5,135,000
Greece	291,000	821,000
Holland	1,574,000	1,472,000
Italy	1,238,000	1,430,000
Japan	2,325,000	1,708,000
Norway	1,597,000	1,957,000
Spain	709,000	884,000
Sweden	917,000	1,015,000
Other countries	2,552,000	55,000
Total steam tonnage	47,897,000	45,404,000
Total sail tonnage (net)	3,022,000	3,686,000
Grand total	50,919,000	49,090,000

The figures for the United States show a net increase of 7,646,000 gross tons for the five-year period, or a

gain of 377 per cent. The Great Lakes tonnage, however, shows a net loss of 100,000 gross tons for the five-year period, and a still more striking loss if we consider the figures for the years 1916, 1917, and 1918, which follow:

1916	2,760,000
1917	2,769,000
1918	2,708,000
1919	2,160,000

This decrease is probably explained by the diversion of Great Lakes tonnage to the more lucrative seagoing trade.

In the same five-year period, 1914 to 1919, Great Britain suffered a loss of 2,547,000 gross tons; Austria-Hungary, 339,000 gross tons; and Germany, 1,888,000 gross tons. The enormous gains made by the United States, therefore, places her far in advance of all other nations of the world with the exception of the United Kingdom.

Shipping in the Foreign Trade.

The following table shows the tonnage of vessels of foreign and American registry entering and clearing from American ports in the foreign trade of the United States since 1900:

Year	Total Net Tonnage	Foreign		American	
		Net Tonnage	Per cent.	Net Tonnage	Per cent.
1900	56,444,146	44,099,576	78.0	12,344,570	22.0
1905	62,140,758	47,857,126	77.0	14,283,632	23.0
1910	79,941,664	62,244,602	78.0	17,697,062	22.0
1911	85,112,136	65,665,903	77.0	19,446,233	23.0
1912	92,574,983	69,614,418	75.0	22,960,565	25.0
1913	101,791,132	74,772,764	73.5	27,018,368	26.0
1914	106,571,986	79,101,283	74.2	27,470,703	25.8
1915	93,595,554	66,901,818	71.5	26,693,736	28.5
1916	103,972,905	68,143,162	65.5	35,829,742	34.5
1917	102,540,349	64,669,885	63.0	37,870,464	37.0
1918	91,525,419	52,980,156	57.9	38,545,263	42.1
1919	92,876,347	51,855,601	55.8	41,020,746	44.2

The steady decline in net tonnage throughout the war, previously observed in the YEAR BOOK (1918, p.

549), has thus apparently come to an end, the figures for 1919 showing a slight increase over those of the pre-

XIX. TRADE, TRANSPORTATION, AND COMMUNICATION

ceeding year. A glance at the table will show that this increase is due entirely to American growth, American net tonnage having been increased to 44.2 per cent., as compared with only 28.5 per cent. in 1915. This increase, it will be noticed, is both relative and absolute.

Undocumented Craft.—No reliable figures exist for the undocumented vessels of the United States. The last

available statistics are those of the 1906 census, which show 19,947 such vessels with a gross tonnage of 6,579,402 tons. Detailed figures from this report relating to 1906 were given in the YEAR BOOK for 1910 (p. 523).

Tonnage Built.—The following table shows the number of vessels built and officially numbered since July, 1917, including vessels built for foreign owners:

	Year Ending June 30, 1918		Year Ending June 30, 1919	
	Number	Gross Tons	Number	Gross Tons
Seagoing				
Steel	252	1,031,976	656	2,725,196
Wood	158	215,716	481	1,021,020
Total	410	1,247,692	1,137	3,746,216
Non-seagoing	1,990	183,101	1,104	114,268
Total	2,400	1,430,793	2,241	3,860,484

There was thus an increase in gross tonnage of 1,693,220 tons in 1919, or over 165 per cent., in steel ships alone. In wood there was a gain of 805,304 tons over 1918, this tonnage, though small absolutely, representing a gain of almost 374 per cent. in the wood ship industry. Included among these wooden ships are many cargo carriers of 3,500 tons burden or more, as well as the smaller barges technically classed as seagoing which reduce the average dead-weight tonnage of the group. (See also XVIII, *Manufactures*, and XX, *Naval Architecture*.)

Government Ownership and Operation.—The present status of opinion with regard to Government control of shipping is apparently that the Government should withdraw from the business of owning and operating a merchant marine but should retain some degree of control. The question has become one concerning, not, indeed, Government *versus* private ownership, but rather American private ownership *versus* control by foreigners. The Greene bill, passed on Nov. 8 by the House of Representatives, provides for the sale of the entire Government merchant fleet to American citizens as soon as practicable. It also provides for continuance of the Shipping Board with certain regulatory powers and for the establishment of a Government marine-insurance bureau. On that date, Nov. 8,

the number of ships under Shipping Board control was 1,280, this figure including 58 ships requisitioned from private owners. The total deadweight tonnage of these ships was 7,706,400 tons.

Coincident with the passage of the Greene bill came a suspension of contracts for steel ships projected by the Emergency Fleet Corporation (see also XX, *Naval Architecture*). Other proposed shipping legislation of the year included a bill introduced on Dec. 3 authorizing the Shipping Board to adjust the claims of wooden-ship builders arising out of the prosecution of the war. This bill is of importance inasmuch as many claims of those in this industry are not of their nature enforceable under existing law, as the obligation was incurred without contract. (See also I, *American History*.)

Ship Subsidies and Mail Payments.

—The net cost of the foreign mail service for the fiscal year 1919 was \$3,771,413, as compared with \$3,349,719 in 1918 and \$3,264,821 in 1916. The substitution of water carriage across the Panama Canal for the old system of railway mail delivery in South America has resulted in an appreciable decrease of Government expenditures, as the following figures witness: 1913, \$149,732; 1919, \$12,773. The use of contract vessels reduced the cost of mail handling

XIX. TRADE, TRANSPORTATION, AND COMMUNICATION

\$2,566,694.35 in the past six years. Some difficulty was caused in the trans-Atlantic mail-carrying service during 1919 by the commandeering of contract ships by the Army and Navy,

but fairly satisfactory service was maintained by the coöperation of military and naval authorities, the War Trade Board, and the Shipping Board. (See also *Post Office, infra.*)

EXTERNAL COMMERCE OF THE UNITED STATES

Total Foreign Trade.—Official figures for the total value of imports and exports (including foreign exports) for the fiscal year ending June 30, 1919, demonstrate that the constant trade increase which was interrupted in 1918 is again in progress. The total value for the year 1919 was \$10,320,960,839, as compared with \$8,865,366,774 for 1918 and \$8,949,403,570 for 1917. Although the total value of our trade is approximately double that of the year 1915 in dollars, it must not be overlooked that much of this increase is due rather to the advance in prices than to an absolute increase. (See also XII, *Economic Conditions.*)

The figures illustrating the ratio between exports and imports for the past five years follow:

	Exports, per cent.	Imports, per cent.
1915	62.3	37.7
1916	66.3	33.7
1917	70.3	29.7
1918	66.8	33.2
1919	70.0	30.0

The tendency for exports to increase as compared with imports, which suffered a temporary check in 1918, is again in evidence, the percentage of increase for the year being approximately that of 1917.

Exports to Foreign Countries.—The value of the total exports of merchandise of the United States for the past three years has been: 1917, \$6,290,048,394; 1918, \$5,919,711,371; 1919, \$7,225,084,257. The increase for 1919 is thus \$1,305,372,886, or a gain of over 22 per cent. as compared with the preceding year. The exports of 1919 were almost 2½ times the value of those of 1915. In addition to merchandise, gold was exported to the extent of \$190,852,224 in 1918 and \$116,575,535, in 1919, thus showing a decrease of \$74,276,689. Silver, on the contrary, showed a gain of \$2,919,378, \$11,475,738 being exported in 1918 and \$14,395,116 in 1919. (See also XII, *Economic Conditions*; and XIII, *Banking and Currency.*)

The exports of foreign and domestic merchandise by continents for the last five fiscal years are given in the following table:

Continent	1915	1916	1917	1918 ¹	1919
Europe	\$1,971,434,687	\$2,999,305,097	\$4,324,512,661	\$3,732,174,352	\$4,634,816,841
North America ...	477,075,727	733,024,674	1,163,758,100	1,236,359,013	1,291,932,342
South America ...	99,323,957	180,175,374	259,480,371	314,558,794	400,901,601
Asia	114,470,493	278,610,881	380,249,708	447,429,267	608,924,548
Oceania	77,764,725	98,775,828	109,314,490	134,891,188	208,351,493
Africa	28,519,751	43,591,031	52,733,064	54,298,757	85,157,432
Total	\$2,768,589,340	\$4,333,482,885	\$6,290,048,394	\$5,919,711,371	\$7,225,084,257

¹ Figures differ from those given in YEAR BOOK for 1918 because of revision.

Attention is particularly called here to the notable increases in export trade to Africa and to South America. Trade with Europe, which suffered a temporary setback in 1918 entailed by the necessary restrictions imposed by the War Trade Board (*A. Y. B.*, 1918, p. 552), shows a net increase of over \$310,000,000 as compared with the statistics for the year 1917.

Trade with Germany has been resumed to the extent of about \$9,000,000, an increase of almost \$7,000,000 over 1917 but still 20 million short of 1915 figures. The statistics for Great Britain show a notable increase over the previous high-water mark of 1917. The figures for France, on the other hand, are not as high as those of 1917, but nevertheless are over three times as great as those of the pre-war pe-

XIX. TRADE, TRANSPORTATION, AND COMMUNICATION

EXPORTS TO PRINCIPAL MARKETS

Market	1910	1916	1917	1918	1919
Germany	\$28,863,354	\$288,899	\$2,199,449	\$.....	\$8,843,882
Great Britain	911,794,954	1,526,685,102	2,046,812,678	1,995,863,297	2,147,412,241
France	369,397,170	628,851,988	1,011,667,206	883,734,921	946,696,797
Canada	300,686,812	468,784,793	787,177,099	778,490,022	813,723,031
Netherlands	143,267,019	97,476,328	109,082,168	6,381,964	103,801,757
Italy	184,819,688	269,246,105	360,608,356	477,898,774	496,174,736
Mexico	34,164,447	47,945,519	79,004,597	107,077,033	119,962,982
Belgium	20,662,315	21,848,114	37,367,997	95,390,695	322,940,837
Cuba	75,530,382	127,198,578	178,292,328	235,469,608	229,545,706
Argentina	32,549,606	66,378,366	82,375,165	109,373,150	138,831,832
Japan	41,517,780	74,470,931	130,427,061	267,641,212	326,462,269
Russian Empire .....	.....	178,694,800	428,688,107	116,705,346	11,390,318

1 These figures differ from those of the YEAR BOOK for 1918 by reason of revision.

riod. Belgium, Canada, and Russia in Europe all show large increases. The table above shows the exports of merchandise to important foreign markets of the United States during the last five years.

Considering the exports of merchandise grouped according to classes, we find there has been a gain in all groups with the exceptions of "Manufactures for further use in manufacturing," which shows a falling off of \$251,140,462 as compared with 1918, and the group called "Miscellaneous" which shows a decrease of \$10,209,574.

Notable gains were made by "Foodstuffs in crude condition and food animals," which advanced from \$375,541,940 in 1918 to \$719,715,994 in 1919, and by the group known as "Crude materials for use in manufacturing," which increased from \$877,328,794 in 1918 to \$1,215,961,910 in 1919. Of the total exports, "Foodstuffs in crude condition and food animals" formed about 10 per cent in 1919; "Foodstuffs partly or wholly manufactured," about 25 per cent.; and "Manufactures ready for consumption," approximately 33 per cent.

IMPORTS AND EXPORTS OF MERCHANDISE, BY CLASSES

YEAR ENDED JUNE 30	Food- stuffs in Crude Condi- tion, and Food Animals	Food- stuffs Partly or Wholly Manufac- tured	Crude Ma- terials for Use in Manufac- turing	Manufac- tures for Further Use in Manufac- turing	Manufac- tures Ready for Con- sumption	Miscel- laneous	Total
IMPORTS :	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1900	97,916,293	133,027,374	276,241,152	131,222,045	203,126,341	5,407,979	849,941,184
1905	146,130,903	145,355,839	389,160,658	177,827,960	252,349,812	6,665,061	1,117,513,071
1910	144,776,636	181,566,572	566,270,770	285,138,373	367,723,367	11,471,712	1,556,917,430
1911	181,194,863	172,006,501	511,362,140	287,785,652	361,422,180	13,454,769	1,527,226,105
1912	230,358,230	196,100,608	555,986,041	293,739,134	360,018,963	17,061,958	1,653,264,934
1913	211,746,500	194,243,220	635,210,201	349,401,928	408,178,704	14,227,681	1,813,008,234
1914	247,947,621	227,644,329	632,865,860	319,275,488	449,318,211	16,874,145	1,893,925,657
1915	223,929,564	285,725,091	575,357,144	237,176,522	335,876,628	16,104,791	1,674,169,740
1916	251,886,746	310,938,181	948,825,500	356,857,197	311,870,967	17,504,987	2,197,883,510
1917	335,573,042	343,435,475	1,109,704,565	477,720,509	377,256,553	15,655,041	2,659,855,185
1918	372,681,751	380,338,011	1,227,283,280	552,053,236	394,671,791	19,028,334	2,946,059,403
1919	376,228,130	456,241,348	1,250,715,064	605,826,278	393,194,577	13,671,183	3,095,876,582
EXPORTS 1							
1900	227,347,192	318,126,502	325,589,000	152,890,591	331,955,684	14,854,601	1,370,763,571
1905	118,185,098	283,065,098	472,114,492	209,926,174	402,049,798	6,403,980	1,471,744,641
1910	109,828,320	259,259,654	565,934,957	267,765,916	499,215,329	8,079,822	1,710,083,998
1911	103,401,553	282,016,883	713,018,206	309,151,989	598,367,852	7,592,542	2,013,549,025
1912	99,893,271	318,838,493	723,008,839	348,149,524	672,268,163	8,165,539	2,170,319,828
1913	181,907,266	321,904,373	731,758,513	408,806,949	776,297,360	8,531,897	2,428,506,358
1914	137,495,121	293,218,336	792,716,109	374,224,211	724,908,000	7,122,249	2,329,684,025
1915	507,003,179	544,565,404	510,455,540	355,862,329	807,465,511	80,826,502	2,716,178,465
1916	380,638,107	599,059,151	535,952,043	657,923,305	1,998,298,249	100,306,729	4,272,177,579
1917	531,866,009	737,795,334	731,990,339	1,191,262,523	2,942,577,415	91,672,430	6,227,164,050
1918	375,541,940	1,153,448,051	897,328,794	1,203,916,333	2,191,137,089	25,787,471	5,847,159,679
1919	719,715,994	1,785,179,568	1,215,960,910	952,775,871	2,384,801,297	15,577,897	7,074,011,528

1 Exports of domestic merchandise only.

XIX. TRADE, TRANSPORTATION, AND COMMUNICATION

A study of the table below shows an increase in the value of exports of almost all commodities. Part of this advance, however, must be attributed to rising prices. A notable decrease in the export value of explosives was to be expected, and the results show a falling from \$373,890,863 in 1918 to \$122,730,877 in 1919. Zinc and its manufactures also show a decrease from \$31,517,399 in 1918 to \$24,569,818 in 1919. Similarly, copper declined from \$268,982,821 to \$144,349,605, and iron and steel from \$1,124,999,211 to \$1,064,974,299. All food products show marked increases, notably meat products, which advanced from \$593,924,928 to \$1,045,689,633.

EXPORTS OF PRINCIPAL COMMODITIES

	1916	1917	1918	1919
Brass and manufactures of	\$164,876,044	\$383,327,555	\$61,443,993	\$21,149,416
Breadstuffs	435,679,323	588,983,454	633,239,856	954,779,894
Cars and carriages....	167,743,843	166,543,664	157,176,948	198,191,860
Cotton (unmanufactured)	374,186,247	543,074,690	665,024,655	863,161,409
Cotton (manufactured)	112,053,235	136,299,842	169,378,223	232,680,723
Explosives	467,081,928	802,789,437	373,890,863	122,730,877
Leather and tanned skins and manufactures	146,703,815	153,709,573	100,880,843	182,908,949
Oil cake, etc.	28,561,303	31,221,749	4,994,193	16,668,973
Spirits, wines and malt liquors	12,577,611	20,883,227	8,836,678	12,911,968
Tobacco manufactures	6,944,347	15,534,438	21,713,571	35,304,498
Vegetables	15,952,412	22,290,710	26,974,701	53,513,794
Wool manufactures ..	53,983,655	18,423,556	17,749,821	31,247,222
Zinc and manufactures ..	45,867,156	65,494,894	31,517,399	24,569,818
Agricultural implements	17,611,297	26,552,986	732,485	665,297
Fertilizers	5,343,497	6,980,132	5,840,139	9,407,217
Furs and fur skins....	9,288,786	15,729,160	13,903,631	14,612,015
Naval stores	13,503,607	15,581,208	11,172,864	17,777,497
Tobacco, unmanufactured	53,865,195	59,954,307	69,674,731	19,189,896,797
Wood and manufactures	60,661,774	62,820,257	82,043,407	104,559,396
Chemicals, drugs, dyes..	124,478,474	187,890,822	180,318,954	148,051,419
Coal, hard and soft....	65,955,709	83,135,141	111,825,165	106,989,511
Copper and manufactures	173,946,226	322,535,344	268,982,821	144,349,605
Fruits and nuts	36,965,228	39,138,817	34,470,678	71,292,813
India rubber and manufactures	35,153,374	31,105,075	33,343,181	43,856,588
Iron and steel and manufactures	621,237,972	1,133,746,188	1,124,999,211	1,064,974,299
Oil, mineral	166,416,922	230,968,940	298,329,011	341,613,109
Oils, vegetable	27,165,026	26,280,134	25,190,982	58,891,504
Paper and manufactures	29,107,386	43,152,980	50,031,686	84,073,269
Meat products	266,642,108	353,812,806	593,924,928	1,045,689,633

Exports by Groups of Ports.—Exports from groups of ports of the United States for the fiscal years 1918 and 1919 were as follows:

	1918	1919
Atlantic Coast.....	\$3,881,744,288	\$4,604,619,650
Gulf Coast.....	715,590,999	959,023,760
Mexican Border	51,052,179	53,722,840
Pacific Coast....	491,401,313	621,450,965
Northern Border	779,922,592	986,267,042
Total	\$5,919,711,371	\$7,225,084,257

The trade from Atlantic ports, which suffered a setback in 1918 due to the falling off of European exports (*A. Y. B.*, 1918, p. 555), shows a net advance of \$209,117,080 over the fig-

ures of 1917. This, together with substantial increases at all other ports, gives a total net increase of \$935,035,863 over 1917 as opposed to a net loss of \$361,762,753 from 1917 to 1918.

The following table shows some of the principal ports of the United States as regards exports:

	1918	1919
New York	\$2,613,048,763	\$3,204,992,419
Philadelphia ..	442,223,170	488,812,868
New Orleans ..	381,331,282	490,718,032
Baltimore	336,079,033	314,301,356
Detroit	263,560,705	364,463,306
Seattle	258,006,441	332,544,759
San Francisco..	211,670,868	243,224,527
Boston	205,132,428	265,741,159
Buffalo	187,136,714	201,503,730
Galveston	194,578,020	311,093,804

XIX. TRADE, TRANSPORTATION, AND COMMUNICATION

IMPORTS OF MERCHANDISE, BY CONTINENTS

Continent	1915	1916	1917	1918	1919
Europe	\$614,354,645	\$616,252,749	\$610,470,670	\$111,578,594	\$372,953,593
North America	473,079,796	591,895,543	766,112,537	913,347,346	1,052,570,196
South America	261,489,563	391,562,018	542,212,820	567,418,257	568,374,904
Asia	247,770,103	437,181,464	615,217,463	826,193,642	830,904,001
Oceania	52,522,552	96,225,991	65,328,379	146,205,707	190,008,129
Africa	24,953,081	64,765,745	60,013,316	75,911,957	81,065,759
	\$1,674,169,740	\$2,197,883,510	\$2,659,355,185	\$2,945,655,403	\$3,095,876,582

Exports to American Dependencies.

—The total value of exports to non-contiguous territories of the United States was \$206,449,904 in 1919, as compared with \$195,717,159 in 1918, and \$160,480,945 in 1917. The increase in 1919 was largely due to the advance in exports to the Philippines, which increased from \$48,425,088 in 1918, to \$69,030,876 in 1919, and to Guam, which increased from \$156,581 in 1918 to \$271,000 in 1919. The value of exports to the remaining territories show slight declines, notably in the case of Alaska, which fell off from \$44,280,075 in 1918 to \$35,544,034 in 1919. The total value of exports to these territories now exceeds total exports to the following foreign markets: Germany, the Netherlands, Mexico, Argentina, and Russia in Europe. A table of exports to dependencies follows (see also VII, *Territories and Dependencies*) :

	1918	1919
Alaska	\$44,280,075	\$35,544,034
Hawaii	43,646,515	43,572,794
Porto Rico	58,945,758	57,898,085
Philippines	48,425,088	69,030,876
Guam	156,581	271,000
American Samoa .	263,142	133,115
Total	\$195,717,159	\$206,449,904

Imports from Foreign Countries.—

The gain in value of total imports to the United States noted in 1918 is again in evidence. Although imports from Europe declined, the total value of all imports shows a net increase of \$150,221,179 over the value of 1918, previously the highest in our history. The total for 1919 is \$3,095,876,582, as compared with \$2,945,655,403 for 1918 and \$2,659,355,185 for 1917. The largest increases were from North America, which shows an increase of \$134,228,850, and Oceania, whose increase over 1918 was \$43,802,422.

European trade, on the other hand, declined to approximately 12 per cent. of our entire imports as compared with 14 per cent. in 1918 and 50 per cent. in 1912. The distribution of merchandise imports by continents was as shown in the table above.

The importation of gold, which reached its highest mark in the history of the United States in 1917, when it totalled \$977,176,026, has since declined, falling off to \$124,413,483 in 1918 and still lower to \$62,363,733 in 1919. Silver, on the other hand, has continued to be imported in increasing quantities, as the following figures show: 1916, \$34,154,375; 1917, \$35,003,563; 1918, \$70,328,153; 1919, \$78,825,266. (See also XII, *Economic Conditions*; and XIII, *Banking and Currency*.)

As was the case in 1918, all the great groups of imports show an increase in value over the preceding year with the exception of the group "manufactures ready for consumption," which shows a comparatively small decline of \$1,477,214 (see table "Imports and Exports," *supra*). The greatest gain was made by the group "Foodstuffs wholly or partly manufactured," which shows a net increase of \$75,903,337 over the preceding year. A noteworthy gain was made also by the group called "Manufactures for further use in manufacturing," which advanced from \$552,058,236 in 1918 to \$605,826,278. Part of these gains must, of course, be attributed to the rise in value of certain of the imported articles. Of the total imports, "Crude materials for use in manufacturing" constituted approximately 40 per cent.; "manufactures for further use in manufacturing," 20 per cent., and "Foodstuffs partly or wholly manufactured," 14 per cent.

In the table which follows is shown the value of imports from the princi-

XIX. TRADE, TRANSPORTATION, AND COMMUNICATION

IMPORTS FROM PRINCIPAL COUNTRIES

Country	1915	1916	1917	1918	1919
Great Britain	\$256,351,675	\$308,443,223	\$307,674,853	\$190,082,456	\$157,107,578
France	77,158,740	102,077,620	108,069,706	75,638,078	62,693,315
Brazil	99,178,728	132,663,984	151,638,245	113,516,954	125,283,489
Cuba	185,706,901	228,977,567	253,395,410	264,024,006	337,654,142
Canada	159,571,712	204,018,227	320,919,492	434,254,567	468,954,818
Japan	98,882,638	147,644,228	208,127,478	284,945,439	303,993,041
Italy	54,973,726	57,432,436	46,374,368	30,014,349	21,573,527
Mexico	77,612,691	97,676,544	112,138,677	140,659,542	157,693,451
British India	51,982,703	71,745,626	102,106,682	105,277,743	125,471,468
Argentina	73,776,258	112,512,420	152,612,411	195,633,348	166,061,589
Chile	27,689,780	64,154,859	113,789,130	141,075,704	135,602,542
China	40,829,710	72,405,278	112,022,104	140,773,343	128,319,451
Straits Settlements	24,989,878	82,114,598	89,984,946	159,188,127	137,576,918
Dutch East Indies	9,245,784	27,716,589	62,011,236	79,314,233	71,036,606
Philippines	24,020,169	28,232,249	42,436,247	78,101,412	82,490,760

pal foreign countries. Although the total import trade shows a large increase, the imports from several important countries have decreased in value. Imports from Great Britain fell off from \$190,082,456 in 1918 to \$157,107,578 in 1919. Imports from France decreased from \$75,638,078 in 1918 to \$62,693,315 in 1919. Italy shows a net decrease of \$8,440,822, and Argentina and Chile together show a net decrease of \$35,044,971. The largest increase was made by Cuba, which shows an advance of more than \$73,000,000. Canada also had a large increase, over \$34,000,000, and continues to hold first place.

Imports by Groups of Ports.—Whereas the imports to Atlantic ports of the United States showed a decrease in 1918, we remark a substantial increase in 1919, the value of imports being \$1,933,102,966 in 1919, as compared with \$1,711,757,676 in 1918 and \$1,763,466,262 in 1917. Imports at the Pacific Coast ports and at interior ports and the Mexican Border decreased, the falling off being most noticeable at the Pacific Coast ports, which suffered a net loss of \$123,952,195, as compared with an increase of \$258,000,000 in 1918. The distribution of imports among the various groups of ports was as follows:

	1918	1919
Atlantic Coast	\$1,711,757,676	\$1,933,102,966
Pacific Coast	617,099,614	493,147,419
Northern Border	404,529,488	432,098,990
Gulf Coast	146,798,259	174,104,730
Interior ports	18,817,710	20,511,320
Mexican Border	46,652,656	42,911,157
Total	\$2,945,655,403	\$3,095,876,582

The following table shows some of the most important ports of the United States as regards value of imports:

	1918	1919
New York	\$1,251,386,373	\$1,433,504,899
Seattle	326,981,279	256,107,450
San Francisco	269,107,408	212,558,354
Boston	248,927,021	245,630,442
New Orleans	117,417,506	134,673,861
Buffalo	108,870,436	100,082,855
Philadelphia	101,527,257	135,771,097
Ogdensburg	92,357,796	102,068,110
Detroit	56,948,344	63,646,951
All customs districts	2,945,655,403	3,095,876,582

Imports from American Dependencies.—The steady growth in value of the imports from non-contiguous territories of the United States which has been observed since 1914 continued in 1919, the net increase being \$23,987,272, or a gain of approximately eight per cent. The largest increase was made by Hawaii, which showed a gain of over \$13,000,000. Of the total imports from this group during the year, Alaska contributed approximately 22 per cent.; Hawaii, 29 per cent.; Porto Rico, 22 per cent.; the Philippines, 27 per cent. The figures are given in the following table (see also VII, *Territories and Dependencies*):

	1918	1919
Alaska	\$71,595,414	\$72,068,159
Hawaii	79,392,936	93,018,404
Porto Rico	65,515,650	71,015,351
Philippines	78,101,412	82,490,760
Guam .....	.....	.....
American Samoa .....	.....	.....
Total	\$294,605,402	\$318,592,674

XIX. TRADE, TRANSPORTATION, AND COMMUNICATION

The Balance of Trade.—In the following table the official figures are given showing the balance of trade (including shipments of both merchandise and specie) incident to merchandise and to merchandise and specie for the past 19 years; the exports are consistently in the lead, and this excess shows a tendency to increase (see also XII, *Economic Conditions*):

BALANCE OF TRADE

FISCAL YEAR	MERCHANDISE			MERCHANDISE AND SPECIE		
	Imports	Exports	Excess of Exports	Imports	Exports	Excess of Exports
1900	\$849,941,184	\$1,394,483,082	\$544,541,898	\$929,770,670	\$1,499,462,116	\$569,691,446
1905	1,117,513,071	1,518,561,666	401,048,595	1,193,646,897	1,660,004,502	461,357,605
1910	1,556,947,430	1,744,984,720	188,037,290	1,615,504,529	1,918,834,796	273,330,267
1911	1,527,226,105	2,049,320,199	522,094,094	1,646,770,369	2,136,579,810	489,809,441
1912	1,653,264,934	2,204,322,409	551,057,475	1,749,251,653	2,326,541,422	576,289,769
1913	1,813,008,234	2,465,884,149	652,875,915	1,923,470,775	2,615,261,082	691,790,307
1914	1,893,925,657	2,364,579,148	470,653,491	1,990,790,920	2,531,582,700	540,791,780
1915	1,674,169,740	2,768,589,340	1,094,419,600	1,874,848,818	2,965,755,675	1,090,906,857
1916	2,197,883,510	4,333,482,885	2,135,599,375	2,726,047,186	4,483,523,956	1,757,476,770
1917	2,659,355,185	6,290,048,394	3,630,693,209	3,671,534,774	6,660,249,550	2,988,714,776
1918	2,916,059,403	5,928,285,641	2,982,226,238	3,140,801,039	6,258,319,264	3,117,518,225
1919	3,095,876,582	7,225,084,257	4,129,207,675	3,237,065,581	7,642,834,342	4,405,768,761

Government Control of Exports and Imports.—The YEAR BOOKS for 1917 (p. 516) and 1918 (pp. 50, 559) gave an outline of the organization and operations of the War Trade Board, which was formed to have jurisdiction over practically all trade during the war with power to control exports to foreign nations either neutral or allied. Since the signing of the armistice in November, 1918, the restrictions imposed by this Board have been relaxed from time to time, and trade is gradually resuming its pre-war freedom. The following are some of the more important decisions made by the War Trade Board during 1919. On Jan. 28, import licenses were granted for specified articles previously excluded. On March 6 resumption of trade with Luxembourg was authorized subject to restrictions of the War Trade Board, and by April the list of countries with which trade had been resumed since the signing of the armistice included Siberia, Alsace-Lorraine, Syria, Mesopotamia, Serbia, Finland, Bulgaria, Turkey and Black Sea ports, the German colonies, Albania, Luxembourg, Poland, and German Austria. On April 14 this list was extended by resumption of trade with Latvia and Lithuania, subject to supervision of the War Trade Board.

On April 29 the board issued a general import license (P. B. G. No. 373) covering imports into the United

States from all countries of the world except Germany, Luxembourg, Hungary, and Bolshevik Russia. The license covered all commodities except sugar, pig tin, and any commodities manufactured in Germany or Austria-Hungary. All commodities not so excluded were permitted entry under blanket license, and the previous individual license system was eliminated. Export restrictions were also relaxed, a blanket license being issued covering commodities not on the export conservation list and delivered to the following countries: the United Kingdom, France, Italy, Belgium, Japan, and Greece. The rationing limitations on northern neutrals were also suspended, and all enemy trading lists heretofore issued were rescinded. General permission was granted to all citizens of the United States to trade with all foreigners except those residing in the prohibited areas. Further relaxation of restrictions upon food exports to the northern neutrals and Switzerland followed in May. On May 12 the Board announced a policy of strict limitation of the importation of German dyes into the United States to the extent to which they are indispensable. On July 1 nitrate of soda and nitrate of potash were removed from the control list. (See also I, *American History*; II, *International Relations*; and XII, *Economic Conditions*.)

INLAND WATERWAYS AND COASTWISE COMMERCE

Domestic Trade of the Great Lakes.
—Traffic passing through the American and Canadian Sault Ste. Marie canals in the calendar years 1917 and 1918 is shown in the following table:

Commodities	1917	1918
Coal, short tons....	18,298,853	17,981,610
Flour, barrels	8,449,949	8,228,844
Wheat, bushels	185,899,449	122,718,146
Other grain, bushels	67,415,795	30,800,621
Manufactured and pig iron, short tons	102,082	38,767
Salt, barrels	84,656	81,007
Copper, short tons..	118,812	86,078
Iron ore, short tons	61,374,090	60,551,296
Lumber, board feet	350,609,000	296,919,000
General merchandise	658,365	494,437
Oil, tons	262,489	334,134
Stone, tons	571,001	402,009
Total, short tons..	89,813,898	85,680,327

This shows a decrease of 4,133,571 freight tons in 1918 as compared with the figures of 1917. The only commodity that increased in tonnage in 1918 was oil, of which 334,134 tons was shipped, as compared with 262,489 tons in 1917. Coal, which showed an increase in 1917, declined in tonnage in 1918 from 18,298,853 to 17,981,610 tons. The shipment of grain other than wheat fell off from 67,415,795 bush. in 1917 to 31,800,621 bush. in 1918. The total traffic of the St. Mary's Falls (American) Canal for the year 1918 was 72,758,680 tons, as compared with 74,361,850 tons in 1917

and 75,085,219 tons in 1916. The number of vessel passages of the American and Canadian canals and the tonnage of the vessels using the canals are shown in the following table:

	Vessel Passages	Tonnage of Vessels
1916	25,407	69,824,463
1917	22,885	65,307,233
1918	20,610	61,100,244

Of the total freight tonnage carried through the American and Canadian canals, steamers transported 81,847,161 tons; sail and unrigged craft, 3,776,824 tons; and unregistered vessels, 56,342 tons. American vessels carried 94 per cent. and Canadian vessels six per cent. of the total freight.

The steady increase in commerce passing through the Detroit River, which was remarked during the 16 years prior to 1917 but which was halted in that year, has not been resumed. Statistics for 1918 show a decline in the number of passages of vessels from 33,061 in 1917 to 24,073 in 1918; the total freight tonnage decreased from 95,243,119 tons in 1917 to 88,855,520 tons in 1918, and the estimated value suffered a decrease of \$245,975,186. The following table shows the number of passages, net registered tons, freight tons, and estimated value for the years 1910 to 1918 inclusive:

	Number of Passages	Net Registered Tons	Freight Tons (estimated)	Estimated Value
1910	33,638	58,821,282	73,526,602	\$771,294,055
1911	30,612	52,142,703	66,951,231	745,167,201
1912	33,675	61,606,271	78,671,208	859,089,501
1913	37,473	62,092,149	85,376,705	927,191,016
1914	31,913	52,927,106	69,810,853	800,032,375
1915	34,823	65,280,425	82,514,457	1,021,518,978
1916	37,852	76,677,264	100,907,279	1,069,617,157
1917	33,061	69,267,723	95,243,119	1,269,590,776
1918	24,673	63,468,229	88,855,520	1,023,615,590

The total number of registered vessels using the Detroit River in 1918 was 877, as compared with 1,034 in 1917. Of all the vessels in 1918, 719 were steam vessels and 158 were sailing vessels and unrigged craft. Of the steam vessels, 667 were of more than 100 registered tons, and the average tonnage of all such vessels was

2,806 tons, as compared with 2,596 tons in 1917 and 2,585 tons in 1916. Of the sailing vessels and unrigged craft (including tow barges), 146 were of more than 100 tons and the average tonnage of all such craft was 1,128 tons.

New York State Canals.—The value of the products transported on the

XIX. TRADE, TRANSPORTATION, AND COMMUNICATION

New York State canals, which had declined in 1916 and 1917, showed an increase in 1918, advancing from \$24,757,077 in 1917 to \$35,212,459 in 1918. This, however, must be attributed to the rise in prices, as the total tonnage, which has been steadily declining since 1910, again suffered a decrease, falling off from 1,297,225 tons in 1917 to 1,159,170 tons in 1918. Of the total tonnage of products transported, for-

est products comprised 25 per cent.; agricultural products, 10 per cent.; manufactures, six per cent.; merchandise, five per cent.; miscellaneous, 54 per cent. The Erie Canal carried the largest number of tons, 667,347, and Champlain was next with 434,784 tons. The following table shows the traffic in tonnage and value of the various New York canals for the nine years since 1910:

	TONNAGE ON NEW YORK STATE CANALS						Total Value
	Erie	Champlain	Oswego	Cayuga and Seneca	All Others	Total Quantity	
1910	2,023,185	684,027	110,079	80,125	175,996	3,073,412	\$59,042,178
1911	2,031,735	770,668	113,891	98,854	81,920	3,097,068	49,577,629
1912	1,795,069	590,723	83,580	80,753	55,991	2,606,116	38,444,617
1913	1,788,453	554,892	61,554	149,874	47,262	2,602,035	36,865,451
1914	1,361,764	492,014	55,705	128,698	42,669	2,080,850	28,277,991
1915	1,155,235	503,030	142,312	26,384	31,153	1,858,114	30,610,670
1916	917,689	506,528	135,948	44,421	20,464	1,625,050	27,513,525
1917	675,083	515,754	74,042	17,525	14,821	1,297,225	24,757,077
1918	667,374	434,784	44,661	7,509	4,942	1,159,270	35,212,459

The total through freight on the Erie Canal, both east and west, was 148,353 tons, and the way freight east and west was 519,021 tons.

Canal improvements were continued during the year. Terminal facilities adequate to meet the demands of the canal traffic were provided at all points on the line of the canal with two exceptions, namely, Rochester and Buffalo. In addition to concrete docks, warehouses of varying size were available at 29 points. Hand-operated timber derricks were provided at all ports, and portable locomotive cranes with a lifting capacity of 4,500 lb. were installed at Pier 5, New York City, Albany, Troy, Syracuse, Amsterdam, Schenectady, Little Falls, Herkimer, Utica, Rome, Rochester, Lockport, Tonawanda, and Buffalo.

Government Control of Water Transportation.—On April 10, 1918, the members of the National Committee on Inland Waterways appointed by the Director-General of Railroads presented to the New York State Canal Board a plan for the control by the Director-General of all freight that would move over the state waterways during the coming season. The Canal Board, by resolution duly adopted, pledged the state to coöperate with the Director-General to the end that such coördination of the can-

als and the railroads of the state should be brought about as would result in the highest degree of efficiency in transportation.

A complete organization with headquarters in New York City was effected by the Federal Government, and approximately 200 canal boats were acquired by charter; a few tug boats were purchased and a number leased for the season. The Government confined its operations to the Erie Canal freight only, particularly bulk-freight grain products from the West, as these were most important in carrying out the Nation's military programme. The freight carried by the Federal Government amounted to 210,000 tons, or about 18 per cent. of the total of all canals. Class and commodity tariffs were published. The Government officials had to contend with many handicaps due to lack of suitable motive power and to inadequacy of boating equipment. Nevertheless, they succeeded in putting modern transportation practices into effect and in stabilizing rates. Although the policy of Federal control gained certain advantages for the canals, it was primarily a war measure, and with the return of peace, plans are under consideration to return the canals to the hands of the state. (See also IX, *Waterways and Harbors.*)

EXPRESS COMPANIES

As described in the 1918 YEAR BOOK (p. 561), on May 28, 1918, the U. S. Railroad Administration sanctioned a plan to consolidate the express business of the Adams, American, Southern, and Wells Fargo companies into one company to be known as the American Railway Express Co. for the period of the war. The Northern, Great Northern, and Western Express companies were subsequently included. This Company controls the operation of the express business of all the railroads in the United States. On Nov. 18, 1918, President Wilson issued a proclamation taking over this Company under Federal control. The report of the Company shows total operating receipts for six months ending December, 1918 of \$128,128,621; total transport revenue for the same period was \$66,429,845; net after expenses shows a deficit of \$9,097,689, and net after taxes a deficit of \$9,870,316.

The Company, therefore, reports a deficit of \$9,870,316 for the last six months of 1918 and an estimated deficit of \$14,920,316 for the eight months ending February, 1919. This deficit is ultimately a Government liability under the present plan of control.

As provided by a general order issued on Nov. 20, 1918, by Director-General McAdoo, increased express rates went into effect on Jan. 1, 1919. The increases ranged from 16 cents to 17 cents per hundred pounds in regions of the United States north of the Potomac River and east of the Mississippi, and from 10 cents to 12 cents per hundred pounds in other regions. On Jan. 3, 1919 the Interstate Commerce Commission granted increased commodity rates on fruits and vegetables from certain southern states to all points in states east of Arizona, Utah, Wyoming, and Montana except Florida.

THE POST OFFICE

Cost of Postal Service.—The total revenues, expenditures, and excess receipts and payments of the Post Office,

as reported by the Post Office Department, are shown for the years since 1910 in the table below:

	Postal Revenues	Postal Expenditures	Deficit (—) or Surplus (+)
1910	\$224,128,657	\$229,977,224	\$— 5,848,567
1911	237,879,823	237,648,926	+ 230,897
1912	246,744,015	248,525,450	— 1,781,435
1913	266,619,525	262,067,541	+ 4,551,984
1914	287,934,565	283,543,769	+ 4,390,796
1915	287,248,165	298,546,026	— 11,297,861
1916	312,057,688	306,204,033	+ 5,853,655
1917	329,726,116	319,838,718	+ 9,887,398
1918	388,975,962	324,833,719	+ 64,142,233
1919	436,239,126	362,497,636	+ 73,741,490

During the period 1910 to 1919, inclusive, the revenues exceeded the total expenditures by \$151,269,695 in spite of the \$11,000,000 deficit of 1915.

The distribution of expense in the postal service for the last four years, 1916 to 1919, is shown in the following table:

	1916	1917	1918	1919
Service in post office	\$143,372,139	\$148,964,353	\$158,280,593	\$185,837,306
Railway mail service	28,515,475	29,340,950	28,789,142	32,899,147
Rural delivery service	51,961,735	55,150,740	52,309,169	65,145,437
Railway mail pay	61,692,461	62,750,551	61,319,309	50,587,807
Other means of transportation	17,239,945	19,694,114	20,434,253	23,798,210
Transportation of foreign mail	3,117,985	3,711,940	3,543,015	4,055,524

Railway Mail Pay.—Payments to railroads for the transportation of domestic mail in 1919 aggregated \$50,587,807 as compared with the following in previous years: 1910, \$49,

405,311; 1911, \$50,583,123; 1912, \$51,691,301; 1913, \$51,959,388; 1914, \$56,155,496; 1915, \$59,576,288; 1916, \$61,692,461; 1917, \$62,750,551; 1918, \$61,319,308.

XIX. TRADE, TRANSPORTATION, AND COMMUNICATION

POSTAL SERVICES, 1918

	Number	Aggregate Travel, miles	Aggregate Length, miles	Annual Rate of Expenditure
Star routes in Alaska	55	8,628.00	309,388.95	\$222,019.37
Steamboat routes	217	29,631.29	3,795,691.45	727,013.66
Mail-messenger routes	8,400			2,986,697.38
Pneumatic-tube routes				959,385.69
Wagon routes in cities				8,886,702.55
Railroad routes	2,897	259,580.70	519,674,375.69	51,086,238.68
Railway post-office cars				1,341,099.23
Electric and cable-car routes	567	8,095.52	11,719,892.99	518,674.83
Total	12,136	305,935.51		\$65,768,445.70
Steamboat and airplane routes				1,022,470.38
Railroad transportation miscellaneous:				
Periodical mails				55,725,758.79
Mail weighing, etc.				821,053.58
Vehicle service				6,750,081.08
Freight on mail bags, post cards, etc.				92,714.17
Railway mail service (officers, clerks, etc.)				26,480,845.64
Total inland service				\$159,793,621.64
Foreign mail, aggregate cost				3,132,252.30
Total				\$162,925,873.94

Post Office Services.—The following is a summary of important operations of the Post Office Department:

Parcel Post.—The increasing popularity and usefulness of the parcel-post branch of the postal service is shown by the fact that the number of parcels increased from 331,394,800 in 1913 to more than 2,250,000,000 in 1919.

Insurance.—In the fiscal year 1919 the number of parcels insured was 69,997,889, an increase of 19,578,281 over the number in 1918. This represents a gain of 38 per cent. The large increase in 1919 is accounted for in part by the increase in the limit of weight of parcels to 70 lb. in the first, second, and third zones and to 50 lb. beyond.

Foreign Mail Service.—The volume of foreign mail has greatly increased in the past six years. From 1913 to 1919 the service was extended from 47 to 85 countries or colonies. The dispatch of parcel-post matter to foreign countries increased from 2,831,512 lb. in 1913 to 17,102,131 lb. in 1919. At the end of the fiscal year mail service was in operation to all countries except to Hungary and the parts of Russia under Bolshevik control. (See also *Merchant Marine*, *supra*.)

C. O. D. Service.—The collect-on-delivery service established on July 1, 1913, enables the sender of a parcel, upon payment of postage and an additional fee of 10 cents, to have the price of the article collected from the addressee provided the amount does not exceed \$100. On July 1, 1917, the rates were changed to require a fee of 25 cents for collecting \$50 or over, this fee including insurance. This service has proven very popular with the public. During 1919, 14,383,663 parcels were handled, an increase of 49.13 per cent over 1918. The fees collected on 1919 business amounted to \$1,473,960.

Registered Mail.—During the fiscal year 1919, 50,129,296 domestic letters and parcels were registered, an increase of 12,531,830 over 1918, representing an increase in revenue of \$1,253,183. There was a decrease of 10,399 pieces in the foreign letters and parcels registered.

Postal Money Orders.—The amount of domestic money orders issued in 1919 was \$1,109,612,850, as compared with \$914,575,255 in 1918. The amount of international money orders issued increased from \$25,938,964 in 1918 to \$39,766,077 in 1919. The provision of money-order facilities for the American Expeditionary Forces in foreign countries contributed to the increase. During the period, July, 1917, to June, 1919, 1,578,371 orders were issued for \$30,421,879, and 450,303 orders were paid for \$10,557,108.

Air Mail Service.—The United States has the only practical commercial airplane mail service in the world. On May 15, 1918, having secured an appropriation of \$100,000 from Congress, the New York-Washington route was inaugurated. This proved so successful that for the fiscal year 1920 Congress appropriated \$850,500, and the service was extended to Chicago and Cleveland. The time saved in the actual delivery of letters between New York and Chicago is 16 hours. On the three routes now established there are in the air daily eight airplanes each carrying from 14,000 to 16,000 letters. The cost of operation of the Air Mail Service for the fiscal year 1919 was \$166,402, and the revenue from sale of airplane stamps was \$194,831.50.

Second-Class Matter.—The weight of newspapers and periodicals mailed as second-class matter during the year amounted to 1,182,297,966 lb. This was a decrease of 3.8 per cent. as compared with 1918. However, due to higher postage rates, the postage collected on such matter aggregated \$16,065,947, an increase of \$4,353,879 over the preceding year.

TELEGRAPHS AND TELEPHONES

Telegraphs.—The principal business operations of the Western Union Telegraph Co., which largely controls the telegraph business in the United States, are shown in the following table for the fiscal years ending Dec. 31, 1917, and Dec. 31, 1918:

	1917 ¹	1918
Stock outstanding..	\$99,786,727	\$99,817,100
Funded debt	31,994,000	28,637,000
Miles of wire	1,631,278	1,354,885
Offices	25,466	25,452
Total income (gross receipts)	78,480,223	59,001,652
Expenses	62,783,006	46,604,926
Net revenue (net profits)	15,697,216	12,396,726
Interest, etc.	1,331,850	776,913
Employee's bonus ..	2	2
Cash dividends	6,982,298	6,982,381
Appropriated for reserve	2,650,000	1,152,816
Surplus for year ..	29,248,410	32,518,994

¹ Some of these figures differ from those given in 1918 YEAR BOOK by reason of revision.

² Not stated.

The corresponding operations of the principal competitor of the Western Union Telegraph Co., namely, the Mackay Companies, which is a voluntary association of many allied companies controlling the Commercial Telegraph Cable Co., and through it the system known as the Postal Telegraph Co., were as follows during the fiscal years ending Feb. 1, 1917, and Feb. 1, 1918:

	1917	1918
Common stock	\$41,380,400	\$41,380,400
Preferred stock	50,000,000	50,000,000
Income from investments in other companies	4,519,365	4,695,497
Operating expenses.	89,059	301,121
Balance	4,430,306	not stated
Dividends	4,425,198	4,388,677
Surplus for year....	5,108	5,699

Telephones.—No later data than those given in the 1914 YEAR BOOK (p. 529) are available for the entire telephone industry of the United States, but the operating returns of the American Telephone and Telegraph Co. in 1917 and 1918 are shown in the following table and are significant if not inclusive:

	1917	1918
Capital stock (outstanding)	\$435,658,725	\$441,947,100
Funded debt	190,753,300	230,335,024
Stations	10,475,678	10,992,325
Miles of wire	22,610,487	23,281,150
Total earning	56,237,063	61,056,163
Net earnings	48,940,466	54,293,017
Dividends	32,481,614	35,229,698
Surplus for the year	3,489,492	3,671,623

The combined operations of the entire Bell System (except the Western Union Telegraph Co.), excluding all duplications, are shown in the following table for 1917 and 1918:

	1917 ¹	1918 First Seven Months
Gross earnings ...	\$301,867,171	\$44,295,815
Operating expenses and taxes	134,839,245	129,246,452
Maintenance and depreciation	94,493,485	54,122,996
Net income	50,714,211	28,893,808
Dividends	36,862,582	23,121,447
Surplus for the year	13,851,629	5,772,361

¹ These figures differ slightly from those given in the YEAR BOOK for 1918.

Government Control.—The principles adopted as a basis of compensation for telegraphs and telephones under Government control were stated in the YEAR BOOK for 1918 (p. 565). Similar provisions for compensation were ultimately adopted for the marine cables taken over by the Government on Nov. 2, 1918 (*A. Y. B.*, 1918, p. 565). The cables were returned on May 3, 1919, after only six months of Government operation. Government control of land wires was finally relinquished at midnight on July 31. On Nov. 13 the President transmitted to Congress the report of the Postmaster-General on the operation of the telegraph and telephone lines by the Government. From this report it appears that the operation of the lines cost the Government a net loss of \$14,418,237. This sum represents the difference between the net earnings of the companies and the compensation guaranteed by the Government. (See also *I, American History.*)

STREET AND ELECTRIC RAILWAYS

The following table shows additions in electric-railway mileage in the United States in the four years 1915 to 1918:

Year	New Electric Track Built	Electrified Steam Lines	Total New Electric Mileage
1915 ..	596.0	448.2	1,044.2
1916 ..	356.3	388.0	744.3
1917 ..	376.7	66.0	442.7
1918 ..	313.82	275.7	589.53

The total rebuilt mileage for the year was 155.43, as compared with 375.4 miles for the year 1917, or less than 50 per cent. of the mileage of the earlier year.

The year 1918 was not, generally speaking, a profitable one for the roads. Twenty-nine companies went into the hands of receivers, representing a total mileage of 2,107 miles, a bad record in comparison with the two preceding years; there were 21 such liquidations, representing a mileage of 1,177 miles, in 1917, and 15 with a total mileage of only 359 miles in 1916.

A study of track figures for 1917 and 1918 shows for the United States a total of 991 companies in 1918, as compared with 1,029 in 1917. The total number of cars increased just 20, from 102,359 in 1917 to 102,379 in 1918. In the latter year 48,484 miles of track were operated, a net increase of about 200 miles over the preceding year after allowances for abandonments, foreclosures and building.

In comparing figures of revenues and expenses for interurban roads in 1917 and 1918, attention is called to the fact that 43 per cent. of the roads reporting increased their fares during the latter year. The operating ratio of these interurban roads for 1918 is given as 67.20, as compared with 63.32 in 1917, an increase of nearly four per cent. A drop in net earnings of 4.26 per cent. is shown. The percentage increase in operating expenses as compared with the percentage increase in operating revenues was almost twice as great. A comparison of op-

erating revenues and expenses of a number of large interurban electric railroads per mile of line is given in the following table:

	1917	1918	Increase, per cent.
Operating revenues	\$17,600	\$18,844	7.07
Operating expenses	11,145	12,664	13.63
Net earnings ..	6,455	6,180	4.26
Operating ratio.	63.32	67.20	

Considering the country as a whole, the statistics for companies with smaller average mileage for February, 1919, indicates that the operating ratio increased from 74.20 in February, 1918, to 77.20 in February, 1919. An income statement for 139 companies for February, 1919, indicates a deficit of \$259,252 in the net income account. Forty-four standard companies show a falling off in net income from \$171,225 in 1918 to \$169,604 in 1919, or a percentage decrease of 0.065. For these 44 roads operating revenues as a whole increased 14.4 per cent. and operating expenses increased 19.89 per cent.

The discouraging financial condition of the roads during the past two years had, up to April 1, 1919, led 378 cities of the United States, representing over 53 per cent. of the total urban population, to increase street-car fares above the five-cent rate. The opposition that is generally encountered in a proposition to increase street-car fares has resulted in considerable agitation for government ownership. To summarize a statement of the Massachusetts Public Service Commission, the following alternatives present themselves: increased fares, and their inconveniences; poor service, and its inconveniences; government ownership, and its inconveniences. A Federal commission was appointed by the President in June, 1919, whose functions are to be the investigation of the problems involved and the recommendation of general principles to govern the regulation, operation, and service of electric railways. (See also X, *Public Services*; and XX, *Electrical Engineering*.)

RAILROADS

Physical Condition and Services.—

The total mileage represented by all steam railroads in the United States with an operating revenue of over \$1,000,000, as reported by the Bureau of Railway Economics in July, 1919, was 233,591.65. No later figures for the total steam-railway trackage than those given in the 1918 YEAR BOOK (p. 566) are available, namely, 397,014 miles on Dec. 31, 1916. The revenue and non-revenue ton miles of freight traffic decreased from 217,604,633,000 in the seven months ending July 31, 1918, to 213,018,594,000 in the seven months ending July 31, 1919, a net loss of 34,586,039,000. During the same period the total car miles decreased from 12,643,446,000 in 1918 to 11,336,275,000 in 1919, a decline of 1,307,171,000 car miles. The freight-train miles also showed a decline from 375,166,000 in 1918 to 300,798,000 in 1919. The tons per train load advanced from 660 to 677, while the tons per car load declined from 28.7 to 27.8.

Director-General Hines reported on Sept. 17 that the number of freight cars in service on July 1, 1919, was 2,065,000, as compared with 1,983,000 in service on July 1, 1917. These figures do not include cars withdrawn for repairs. The total number of unfilled freight-car requisitions declined from 77,257 on Aug. 1, 1917, to 19,271 on Aug. 1, 1919.

The Operating Statistics Section of the Railroad Administration issued this report covering the operations of the calendar year 1918:

The net ton miles of freight handled in 1918 was 434,997,928,000, and increase of 1.8 per cent. over 1917. For the 12 months ending Dec. 31, 1918, the average miles of road operated was 228,729, as compared with 228,633 for the 12 months ending Dec. 31, 1917. The average number of freight cars on line daily in 1917 was 2,363,309 and in 1918 it was 2,430,786.

Revenues and Expenses.—The following tables, taken from the report of the Interstate Commerce Commission on 105 Class I roads and 17 switching and terminal roads, show the revenues and expenses of the roads during the first six months of 1918 and of 1919:

	First Six Months, 1918	First Six Months, 1919
REVENUES		
Freight	\$1,439,048,083	\$1,613,365,465
Passenger ...	448,613,479	542,809,826
Mail	27,157,506	25,790,449
Express	56,823,141	52,815,186
All other transportation	57,094,895	57,998,562
Incidental ...	57,604,190	61,631,485
Joint facility, Cr.	2,757,041	3,267,367
Joint facility, Dr.	833,294	993,010
Total revenues	\$2,088,265,041	\$2,356,685,330
EXPENSES		
Maintenance of way and structures	\$288,500,683	\$370,823,325
Maintenance of equipment	462,869,824	572,951,370
Traffic expenses	27,788,477	22,447,290
Transportation expenses	970,803,480	1,043,210,090
Miscellaneous operations .	18,732,146	22,712,035
General operating expenses ...	55,842,879	61,427,854
Transportation for investment ..	2,845,858	3,026,290
Total expenses ..	\$1,821,691,630	\$2,090,546,274

Class I railroads earned 39.8 per cent. of their standard return during the first six months of 1919, as compared with 38.4 per cent. during the first half of 1918. The net Federal income for the first six months of 1919 was \$156,827,416, and the net Federal income for the first six months of 1918 was \$151,319,830; the standard return is \$393,975,779.

The operating revenue for the first half of 1919 was in advance of that of 1918, the figures for 1919 being \$2,356,685,330, as compared with \$2,088,265,041 for 1918. The operating expenses also increased from \$1,821,691,630 in 1918 to \$2,090,546,274 in 1919. There was an increase in each general group of expenses except those called "traffic expenses," which declined from \$27,788,477 to \$22,447,290. (See also XII, *Economic Conditions*.)

Capital Expenditures and Advances.—The following estimate of capital expenditures proposed to be

made on Class I roads for 1919, amounting to \$825,715,471, of which \$245,585,643 is for standard equipment ordered by the Railroad Administration and \$580,129,828 for additions and betterments, was filed with the House Committee on Appropriations by the director of the Division of Finance in July, 1919. The estimate previously submitted by Mr. Hines, Director-General of Railroads, provided for only \$253,000,000 of the amount. This sum is only \$8,000,000 more than the cost of the equipment. It was expected that the rest of the programme would be financed by the railways themselves. Detailed figures of the estimates for 1919 follow:

Contract rental	\$895,003,076
Other corporate income	156,032,158
Total corporate income	1,051,035,234
Interest, rental, taxes, corporate expenses, etc.	625,370,308
Dividend declared (authorized)	267,244,763
Surplus after fixed charges and dividend	169,102,479
Road and equipment, excluding Railroad Administration equipment	580,129,828
U. S. Railroad Administration equipment	245,585,643
Total estimated capital expenses	825,715,471

Uniform Classification of Freight Rates.—As an outgrowth of almost 30 years of agitation in railroad and shipping circles for a uniform freight classification, the Interstate Commerce Commission on Sept. 23 recommended to the Director-General of Railroads the consolidation of the existing three classifications of freight rates, in force in official, western, and southern territory, with only such changes in ratings as were necessary because of changes in descriptions of classes. The Commission did not recommend that state classifications be cancelled summarily but maintained that there was generally no reason for different ratings for state and interstate traffic. It recommended that the differences in classification be worked out in co-operation with the state commissions.

Railroad Construction.—In the year 1918 a very small addition was made to main-line track mileage, namely, 721.57 miles. This figure is far be-

low any since the Civil War. The new line completed in 1917 was 979 miles. However, much improvement work was done. More miles of main line were abandoned during the year than were built, a total of 1,182 miles; 445.83 miles were abandoned permanently and taken up, 512.68 miles were abandoned permanently, but not taken up, and 224.37 miles were abandoned for operating purposes for the period of Federal control.

Railway Wages.—On Aug. 25, 1919, in the face of a threatened strike of railway employees, the President announced to representatives of the American Federation of Labor his decision that there should be no further wage increase for railway employees for the present. This decision, based on the recommendations of Director-General Hines, was made on the grounds that wages had been advanced during the two years of Federal control at a rate equal to or exceeding the rising cost of living, and that further advance was not warranted by comparison with wages in other trades. A further rise in wages at present would be paying too high a price for the postponement of a possible strike. As estimated by the roads, wages now call for an annual budget of \$2,834,600,000. The new demands called for a pay roll of \$3,634,600,000. (See also I, *American History*.)

Railroad Administration.—Details of the organization of the U. S. Railroad Administration were given in the YEAR BOOK for 1918 (p. 569). It has been stated that the railroads were taken over by the Government for three reasons: (1) the financial difficulties of the roads; (2) the necessity of stabilizing the labor situation; and (3) the war-time needs of the Government. Among the many difficulties that had to be contended with were: (1) a general coal shortage; (2) a steel shortage, relative and absolute; (3) a steadily increasing wage schedule; (4) the concrete problems of getting supplies to the Allies and of the transportation of troops. Both of these last were tremendously complicated by traffic congestion.

The Railroad Administration met all these difficulties but at considerable expense. According to a statement made by Director-General Hines in

August, 1919, there was a net deficit of over \$296,000,000 for the first six months of 1919 coupled with a falling off of net freight business for the same period, as indicated by the following comparison of net ton miles per mile of road per day of 1919 with the corresponding data for the preceding two years:

Six Months Ending June 30,	
1917	5.081
1918	4.975
1919	4.266

By June there seemed to be apparent a fairly general sentiment that the Federal Government had accomplished its function and that the roads should be given back to their former owners in advance of the statutory limitation on the period of Government control. Certain of the labor interests, however, favored the retention of the roads by the Government. This opinion was crystallized in what was known as the Plumb plan, and incorporated in a bill introduced in the House on Aug. 2. This was only one of many plans for the return of the roads submitted to Congress, the more important of which are summarized elsewhere in connection with a complete review of the development of national policy during the year (see I, *American History*).

President Wilson on Dec. 24 issued a proclamation returning the roads to private control on March 1, 1920, and authorizing the Director-General of Railroads to adjust, settle, and close all matters, including questions of compensation necessary to carry into effect the relinquishment of railroad property. A similar proclamation was issued with respect to the American Railway Express Co.

RULINGS OF THE INTERSTATE COMMERCE COMMISSION

Among the principal decisions of the Interstate Commerce Commission for the year beginning January, 1919, are the following:

(1) *Buffalo Lumber Exchange v. Buffalo Chamber of Commerce* (Jan. 14, 1919).—Denial of right to substitute new and higher tariffs on rough lumber proposed because a connecting carrier handling shipments over a portion of route only was receiving an unsatisfactory division of through rate.

(2) *Natchez Chamber of Commerce v. La. & Arkansas Ry. Co. et al.* (Jan. 16, 1919).—Natchez found to be subjected to undue prejudice with respect to intrastate rates between western Louisiana points and interstate rates between western Louisiana points and southern Arkansas points. Defendants required to establish a distance scale of class rates between Mississippi River crossings (Memphis to New Orleans inclusive) and western Louisiana and southern Arkansas points not exceeding rates for like distances (1) between western Louisiana points and (2) between Western Louisiana points and southern Arkansas points.

(3) *Three Lakes Lumber Co. et al. v. Washington Western Ry. Co.*—Rates on lumber and forest products from points on the Washington Western to interstate destinations found to be unreasonable. New relationship prescribed.

(4) *Portland Traffic and Transportation et al. v. Canadian Pacific Ry. et al.* (Jan. 27, 1919).—Charges on logging engines in carloads from Portland, Ore., to Vancouver, B. C., found unreasonable.

(5) *Rapsen Coal Mining Co. v. Great Northern Ry. Co.* (Jan. 14, 1919).—Conclusion that complainant was subjected to unjust discrimination by maintenance of a charge of two cents per 100 lb. for milling wheat in transit at Great Falls, Mont., as compared with eastern and Western terminal mills, reaffirmed at rehearing. Previously decided July 13, 1916 (41 I. C. C. 29).

(6) *Humphreys Godwin Co., v. Vicksburg, Shreveport, & Pacific Ry. Co.*—Rate on cotton seed in carloads from Shreveport, La., to Vicksburg, Miss., found to have been unreasonable.

(7) *Ohio Valley Coal Operators Association v. Louisville & Nashville Ry. Co. et al.* (Feb. 3, 1919).—Rates from mines in western Kentucky on the Louisville & Nashville to Cincinnati, Ohio, are unduly prejudicial to the extent they exceed rates from mines on the Louisville & Nashville railroad in Jellico-Middleboro group in eastern Kentucky and Tennessee by more than 15 cents per net ton.

(8) *Virginia Pine Timber Co. v. New York, Philadelphia, and Norfolk R. R.* (Feb. 17, 1919).—Rates on mine props in carloads from specified points in Delaware, Maryland, and Virginia to Shenandoah, Pa., found to have been unreasonable.

(9) *Commercial Club of Omaha v. Baltimore & Ohio Railroad Co. et al.*—Summer excursion fares held to be unjustly prejudicial of Omaha to preference of Kansas City and St. Joseph.

(10) *Ida S. Branstein v. Boston & Maine R. R. et al.* (Feb. 21, 1919).—Rates charged on leased cars for milk between Vergennes and Brandon, Vt., and Boston held to be unreasonable.

(11) *Mobridge Grocery Co. v. C. M. & St. P. Ry. Co. et al.* (Feb. 26, 1919).—Carload rates on groceries from Chicago and Rock Island, Ill., and Duluth and St. Paul, Minn., to Mobridge, S. D., all found to be unreasonable.

(12) *Duckworth Co. v. Illinois Central R. R. Co. et al.*—Rates on compressed cotton from New Orleans to Seattle, Wash., for export held unreasonable.

XIX. TRADE, TRANSPORTATION, AND COMMUNICATION

- (13) Chattanooga River Brick Co. v. Alabama Great Southern R. R. Co. *et al.* (Feb. 26, 1919).—Rates on brick in carloads from Chattanooga, Tenn., to Fort Payne, Ala., unreasonable.
- (14) Public Utilities Commission of Colorado v. Atchison, Topeka and Santa Fe Ry.—Class rates carrying the Federal increase of 25 per cent. from Denver to certain points in Texas, Kansas, Nebraska, South Dakota, and Wyoming held to be unreasonable and revised.
- (15) Aetna Explosives Co. v. Alabama Great Southern R. R. *et al.* (Feb. 26, 1919).—Rates on sulphuric acid in tank-car loads from various points in Mississippi, Alabama, and Georgia to Copperhill, Tenn., held unreasonable.
- (16) Larkin Co. *et al.* v. Erie R. R. (March 18, 1919).—Modification of official classification on lamps complete with globes and shades, ordered.
- (17) Louisville Passenger Fares Case (March 10, 1919).—Transportation of passengers between Louisville, Ky., and Jeffersonville, Ind., to cost not more than 10 cents (defendants, Louisville & Southern Indiana Traction Co. and Louisville & Nashville Ry. and Lighting Co.).
- (18) James Bute Co. *et al.* v. Atchison, Topeka, and Santa Fe Ry. (March 10, 1919).—Rates on common window glass in carloads from certain Kansas points to Houston, Tex., held unduly prejudicial.
- (19) Dupont de Nemours Co. v. New York, Philadelphia, & Norfolk R. R. Co. *et al.*—Carload rates on nitrate of soda from Norfolk, Va., to Gibbstown, N. J., found unreasonable.
- (20) Feeders Supply Co. v. Chicago, Burlington & Quincy Ry. *et al.*—Rates on cotton-seed hull bran in carloads from East St. Louis, Ill., to Kansas City, Mo., found unreasonable.
- (21) Atlas Portland Cement Co. *et al.* v. Northampton & Bath R. R. Co. *et al.*—Rates on cement to and from points on the Northampton & Bath R. R. held to be unreasonable.
- (22) Naylor Co. v. Delaware, Lackawanna, & Western Ry. Co. (March 18, 1919).—Storage charges assessed at Hoboken, N. J., on pig iron found to be unreasonable.
- (23) Nephi Plaster & Mfg. Co. v. Atchison, Topeka, & Santa Fe Ry. *et al.* (March 17, 1919).—Rates on plaster in carloads from Gypsum, Utah, to points in California held unreasonable.
- (24) Standard Oil Co. (Cal.) v. Atchison, Topeka, & Santa Fe Ry.—Rates from Richmond, Cal., to various destinations along the Atchison, Topeka, & Santa Fe modified and adjusted.
- (25) Weed Lumber Co. v. Southern Pacific R. R. Co. *et al.* (April 4, 1919).—Rates on sash, doors, and moulding in carloads from Weed, Cal., to Gallup, N. M., and Flagstaff, Ariz., unreasonable.
- (26) Nashville Traffic Bureau v. Louisville & Nashville R. R. Co. (April 12, 1919).—Rates charged on coal in carloads from Kentucky mines to Nashville, Tenn., found to have been unreasonable.
- (27) Strasburg Steam Flouring Mills v. Southern Railway Co. *et al.*—Rates and regulations on carload wheat from points in and west of Central Freight Association territory and from points in Pennsylvania, Maryland, West Virginia, and Virginia, to Charlestown, W. Va., and Strasburg and Winchester, Va., for milling and reshipment to points in Carolina territory unduly prejudicial. Readjustment provided.
- (28) Kansas Car-Lot Egg-Shippers Association v. Baltimore & Ohio R. R. Co. *et al.* (April 7, 1919).—Rates on car-lot shipments of 20,000 lb. and over of butter, butterine, oleomargarine, dressed poultry, and eggs in official classification territory, both as to traffic having origin and destination in that territory, and on shipments to points on lines of southern classification territory found unreasonable and unduly prejudicial. Third-class rates of official classification territory prescribed as maximum.
- (29) Commercial Club of Greely *et al.* v. Colorado & Southern Ry. Co. (April 19, 1919).—Carload rates on potatoes from Greely, Col., to points in New Mexico, Texas, Oklahoma, Kansas, Nebraska, Missouri, Arkansas, Louisiana, Tennessee, Mississippi, Alabama, Georgia, and Florida not found to be unreasonable except in case of rates to New Mexico. Class C rates prescribed in last instance as maximum.
- (30) Ash Grave Line & Portland Cement Co. v. Atchison, Topeka, & Santa Fe Ry. *et al.* (April 24, 1919).—Charges on cement in carloads from Independence and Chamuto, Kan., to Shamrock, Okla., found to have been unreasonable.
- (31) Northern Potato Traffic Association v. Chicago & Northwestern Ry. Co. *et al.* (April 23, 1919).—Defendants' tariff rule under which they seek to relieve themselves from liability for loss or damage on carload shipments of potatoes in stock cars or in box cars with side doors fastened and open for ventilation found to be unreasonable and in violation of Cummins Amendment.
- (32) J. Allen Smith and Co. v. Southern Railway *et al.*—Failure of Southern Railway Co. to include New Albany, Ind., among the points named in tariff granting milling-in-transit privileges on wheat shipped from Chicago, Ill., to Knoxville, Tenn., held to have been unreasonable, on reconsideration.
- (33) Ohio Valley Coal Operators Association v. Illinois Central R. R. (May 1, 1919).—Rates on bituminous coal in carloads from mines in western Kentucky on the Illinois Central, Louisville & Nashville, and Nashville & Kentucky Midland railroads to points in Mississippi Valley and southwestern territories found unduly prejudicial in specified cases.
- (34) Southern Rice Growers' Association *et al.* v. Texas & New Orleans R. R. Co. *et al.* (April 7, 1919).—Through rates on rice in carloads from the Texas and Louisiana rice belt to consuming markets based upon the aggregates of the full local rates in and out of the milling points found to be unreasonable to the extent that they exceed the through rates on rough rice by more than two cents per hundred pounds.
- (35) South San Francisco Chamber of Commerce v. Southern Pacific Co. *et al.* (April 16, 1919).—Revision of rates specified as unduly prejudicial to South

XIX. TRADE, TRANSPORTATION, AND COMMUNICATION

San Francisco as compared with San Francisco ordered.

(36) Investigation and Suspension Docket No. 1161: Reconsignment Case No. 3 (June 24, 1919).—Held that a flat charge of two dollars per car for setting out and holding on tracks for official inspection, when the disposition order is not furnished within the time specified in the report, is reasonable. Decision applies to cars of grain and seed.

(37) In the Matter of Rates on and Classification of Lumber and Lumber Products (April 7, 1919).—The Commission is empowered under Section 1-3215 of the Act to Regulate Commerce to prescribe a classification of lumber and lumber products. When the movement of given articles at commodity rates is to such an extent predominant that the class rates can no longer be regarded the normal adjustment, it is desirable to ascertain whether or not a standardization of rate relationships such as the classifications were intended to afford can again be affected upon a new basis different from that found inadequate in the existing classification. Classifications should rest in the first instance upon those factors which are definite and readily ascertainable, such as value, risk, and car loading. The range of values on common lumber to such an extent embraces the value of the other articles under consideration as to make impracticable and unjust a differentiation in rates based on value. This element should be considered only in fixing the basic lumber rate and its relationship to rates on commodities not so intimately related to lumber as those under consideration. The car loading of lumber and lumber products constitutes to a considerable extent the determinative factor in their classification. A percentage relationship between lumber and other articles which should take related rates will effect a fairer distribution of transportation costs than the observance of flat differentials. Rates on lumber products should not exceed commodity rates contemporaneously maintained on lumber by more than a specified differential as indicated in schedule. Poles and piling from the north Pacific Coast and Inland Empire should take rates no higher than those contemporaneously applied on fir lumber.

LEADING COURT DECISIONS

The following are among the most important court decisions affecting railroads rendered since the last issue of the YEAR BOOK:

(1) Northern Pacific Ry. Co. and Walker D. Hines as Director-General of Railroads, plaintiffs in error, *v.* State of

North Dakota on the relation of Wm. Langer, Attorney-General (decided June 2, 1919).—The Supreme Court ruled that although authority to regulate within a given sphere may exist in both the United States and in the states, when the former calls into play constitutional authority within such general sphere the necessary effect of doing so is that, to the extent that any conflict arises, the state power is limited, since in case of conflict that which is paramount necessarily controls that which is subordinate. The Court ruled further that authority to make and enforce interstate rates without regard to state action was included in the powers given to the President by Acts of Aug. 29, 1916, and March 21, 1918, to take over the railroads as a war measure.

(2) Skinner & Eddy Corporation *v.* U. S. of America, Interstate Commerce Commission, Baltimore & Ohio R. R. Co., *et al.* (decided May 5, 1919).—The Supreme Court ruled that railway carriers still have the power to fix rates as low as they choose and to reduce rates when they choose, subject only to the statutory requirement of notice, this despite the original Act to Regulate Commerce. The prohibition against the increase of railroad rates which the carrier has reduced in competition with water routes (unless after hearing by the Interstate Commerce Commission it shall be found that such proposed increase rests upon changed conditions other than the elimination of water competition), does not apply where the reduction was made with the approval of the Commission.

(3) New York Central R. R. Co. *v.* Samuel Goldberg (decided May 19, 1919).—The Court decided that a misrepresentation of an interstate shipment in the bill of lading if not attributable to fraud did not relieve the carrier of liability for the loss of goods.

(4) Postal Telegraph-Cable Co. *v.* Chicago Great Western R. R. (decided Jan. 20, 1919).—The Supreme Court decided that Congress had confirmed the validity of provisions in contracts between railway and telegraph companies whereby these companies exchange services, and that this validity should be recognized as to off-line services as well as those of the line. The proviso is added permitting free passes to be given to employees of the telegraph, telephone, and cable lines.

(5) Missouri, Kansas, & Texas Ry., plaintiff in error, *v.* John Sealy, *et al.*—The Court ruled that the contention that the Federal law governs the rights and liabilities of the parties to an interstate shipment is too insubstantial to afford the basis for a writ of error from the Federal Court to a state court when the cause of the action, if any, arose six years before the passage of the Carmack Amendment of June 29, 1906.

XX. ENGINEERING

CIVIL ENGINEERING

FRANK C. WIGHT

General Conditions.—Civil engineering activities in 1919 did not react immediately from the abnormal influences of the war. In 1917 and 1918 engineers in this country were busier than ever before, but their efforts were all directed to war needs. Cantonments, munitions factories, offices, ports, terminals and warehouses occupied practically all of the profession who were not in active military service and only such normal work was done as was required for bare maintenance and renewal. The end of the war found materials and labor so high in price and the future trend of such prices so uncertain that for at least six months, that is, until the spring of 1919, there was practically a standstill in all construction, the outward evidence of engineering effort. Many attempts were made to encourage public works by all subdivisions of the Government, not only to restore confidence, but also to provide an outlet for an expected labor surplus, but these efforts were for the most part unsuccessful (see also XIV, *Unemployment*). Finally, however, private owners became doubtful of a reduction in prices and began the construction of long deferred industrial plants and plant renewals. At the same time the long pending highway boom seemed to take a remarkable impetus, and millions of dollars were appropriated for roads throughout the country (see also IX, *Highways*). As a result the summer of 1919 was a busy one for the engineer and contractor in these two lines of work. Practically nothing, however, except as noted below, was done in other lines of engineering, and the fall of 1919 saw a falling off from normal times, for the industrial-plant and highway construction could not make up the deficiencies in public-service work or in so-called heavy con-

struction, such as harbors, railways, dams, irrigation, etc.

The labor trouble common to all industry necessarily affected engineering (see XV, *Labor*). In the larger cities much difficulty was had in the building trades, and strikes for higher wages, shorter hours, and jurisdictional control were numerous and expensive. Labor costs were so high and uncertain as to make predictions as to building costs impossible, and materials were either scarce or expensive or both. The general unrest over the high cost of living extended to the rank and file of engineering workers, the draftsmen and the employed engineers. Never paid a wage commensurate with their responsibilities or with the cost of their training, these men suffered, along with other non-organized groups, from the increasing cost of every necessity. As a consequence there was growing agitation in some quarters for the formation of unions to enforce demands by collective bargaining. Many other engineers, feeling that it was unsafe to attempt labor-union methods, agitated for higher pay through society demands on the employer, particularly for the Government-employed engineers. These demands, as a rule, did not succeed, nor was the occasional union much more successful. At the end of 1919 the employed engineer remained the lowest paid of professional men.

Military Engineering.—With the end of the war it is now possible to indicate in some detail the extent of the job the American Army engineers did in France; what they did in this country has been told in previous issues of the YEAR BOOK (1917, p. 534; 1918, p. 577). The following summary outlines what might be called the civilian activities of the Corps of Engineers who had charge of all construction for

the A. E. F.; it does not take into account any of the military activities of the Army engineers. (See also III, *Statistical Summary of the European War*.)

Of all the technical services the Engineer Corps was the largest. On Nov. 11, 1918, there were under the direct command of the technical supervision of the Chief of Engineers, A. E. F., 174,000 Engineer troops of all ranks, distributed as follows:

With armies	86,400
Miscellaneous (including troops in training at schools, shops, etc.)	18,500
Construction (in the Services of Supply under the Division of Construction and Forestry) ...	43,000
Forestry	18,500
Supplies	7,600

Total Engineer troops 174,000

In addition there were engaged on road and construction work in the A. E. F., mainly under the supervision of the Division of Construction and Forestry, about 34,500 troops of other arms, 34,000 civilians, and 15,000 prisoners.

In addition to the work of the Engineer troops operating with the armies, which maintained lines of communication, built bridges, fought as infantry, conducted camouflage, searchlight, flash and sound ranging, water-supply activities, and many other special functions, the engineers up to the end of the year 1918, unless otherwise noted, accomplished the following results in the A. E. F:

Shelter of Troops.—A total of 15,039 barracks were erected, which represented 285 miles of barracks placed end to end.

Hospitalization.—Space for 280,000 beds were provided, of which 145,913 represented new construction. New construction was equivalent to 7,700 hospital barracks, 20 by 100 ft., which represented 146 miles in wards.

Ports.—Docks for 10 vessels were constructed at Basins. These were 4,100 ft. long and were equipped with switching facilities, warehouses, etc. For three months the average daily tonnage discharged at American Basins was 3,700 tons. Docks at other ports for the use of seagoing ships were completed or partially completed when work was stopped by the armistice. Eighty-nine berths, totalling

seven miles, were either built or acquired from the French.

Ligherage.—A dock 750 ft. long at St. Loubes was completed, and 84 lighters and seven derricks were constructed.

Railroads.—Nine hundred and forty-seven miles of standard-gauge railroad (most of it in yards) was completed, approximately the distance between Chicago and New York; a six-mile cut-off at Nevers, requiring a bridge 2,190 ft. long across the Loire River was built.

Storage Depot Warehouses.—Covered storage space constructed was 21,972,000 sq. ft. or 500 acres, providing space for 90 days' reserve supplies for 2,220,000 men.

Remount Depots and Veterinary Hospitals.—Remount space was provided for 39,000 animals and veterinary-hospital space for 23,000 animals.

Water Supply and Sewerage.—Much work was done to give pure water to troops. The supply of water for many large cities was chlorinated under Engineer control. Four million gallons per day was developed by artesian wells in the Bordeaux region. Sewerage in the Mesves Hospital project alone required 28 miles of pipe and water supply the same amount. Large municipal water-supply developments were made at Brest and St. Nazaire.

Refrigeration.—A refrigeration plant was built at Gievres with a daily capacity of 5,200 tons of meat and 375 tons of ice. Three other plants were also built.

Bakeries.—Mechanical bakeries to produce 500,000 lb. of bread every 24 hours were constructed at Is-sur-Tille. Construction of bakeries of 80,000-lb. capacity in three other cities was stopped by the armistice.

Power Plants.—Electric power was obtained from existing sources and by new construction in the form of central stations and transmission lines.

Oil and Gasoline Storage.—By construction of tanks at the coast storage was provided for 150,000 bbl. of oil and gasoline. Sixty-nine 300-bbl. tanks and 150-bbl. tanks were manufactured for distributing stations, and 17 complete storage stations, including pumps, were put in operation.

Forestry.—Eighty-one lumber mills

were in operation in October, 1918. The total production to Dec. 1 was: 189,564,000 ft. b.m. of lumber; 2,728,000 standard-gauge ties; 923,560 narrow-gauge ties; 1,739,000 poles and pit props; 892,200 steres of fuel wood; 38,200 pieces of piling. The fuel wood, corded, would extend a distance of 375 miles.

Roads.—Maintenance and repair of 300 miles of road and 90 miles of new roads in the S.O.S., exclusive of zone of Advance, was accomplished.

Engineer Supplies.—From March to Dec. 31, 1918, the total tonnage of engineer supplies received from the United States was 1,496,489 tons, the total tonnage from all sources being 3,255,121 tons. On Nov. 11, 1918, the total covered space occupied by engineer supplies was 764,000 sq. ft., and the total open space occupied was 14,352,000 sq. ft. Nine storage depots were maintained. Repair shops were operated to care for engineer supplies. These shops made 100 firing platforms for 75 mm. guns, 30 pontoon wagons, and 100 500-gal. water tanks, and completed more than 2,000 orders before the armistice.

Cement Mills.—Seven cement mills were operated by Engineer troops, producing 55,000 tons, or 315,000 bbl. of cement during five months of operation. Concrete pipe amounting to more than 100 miles was made for A. E. F. use.

Light Railways.—The total tonnage handled on light railways up to Feb. 1, 1919, was 860,652 tons, of which 166,202 tons were ammunition. In one week 10,600 tons of ammunition were handled, in six nights 23,135 soldiers were carried, and in one week 10,700 tons of rations were handled. The daily net tonnage handled in October, 1918, was 8,100 tons. At the time of the armistice 2,240 km. of light railway were in operation, of which 1,740 km. had been taken from the Germans, the balance being newly constructed or rebuilt. On Nov. 11, 165 locomotives and 1,695 cars were available for use. In five hours 135 men laid 14,200 ft. of light-railway track. Ten shop buildings, 70,000 sq. ft. in total area, were constructed at Abainville, 125 acres being occupied by the shop project; 2,300 cars were erected and 140 locomotives repaired.

Roads.—As stated above, the two main lines of work in civil engineering during 1919 were highways and industrial buildings. The long campaign for good roads has apparently begun to bear fruit. Everywhere counties, cities, states, and the Federal Government are spending hundreds of millions of dollars on highway construction. The extent of this development is described elsewhere (see IX, *Highways*). It remains for this section merely to comment upon the engineering features.

The most marked change in the modern road over that of yesterday inheres in the necessity for the heavier loads which it must carry. Motor trucking is becoming an accepted form of freight transportation, and although it is by no means a fact that it is incumbent upon the Government to provide a highway sufficient to carry safely any load that may be put upon it, it is necessary to provide sufficient strength and wearing quality to carry the load that is proved most economical for the owner of the motor truck and the ultimate consumer. At present that load seems to be around five tons, although much heavier loadings are being transported. This means that the main-line roads over which the motor truck travels must be, as a rule, of the so-called hard type, and consequently asphalt, brick, and concrete roads are increasing greatly in number. There is a tendency, too, among the better type of highway engineers to attempt something which has never been done before, that is, the design of the road as a structure to carry load. It is admitted that there are many almost insurmountable difficulties in such a design, but nevertheless it is something that sooner or later will have to be accomplished. Along with the increase in road construction comes the necessity for increased unit production of road. Whereas a few years ago it used to be a record to build 100 to 200 ft. of hard road surface a day, now many contractors are turning out 500 ft., and in a few instances this has been surpassed. Such construction requires a coördination of contracting methods and a superiority of contracting equipment far beyond anything developed in the past.

One aspect of the highway craze which is now spreading over the country, for craze it can properly be called, is more apparent to the engineer than it is to the road boomer, namely, that there is great danger of overplaying the game. Millions of dollars are being appropriated to-day by public agencies for roads the location of which is not known and the construction and design of which are not being properly supervised. There are not too many men in the country who know how to build good roads, and if the boom continues on its present scale, the result will probably be detrimental to the further increase of road construction, because the roads that will be built will not prove satisfactory to the citizens who are now appropriating money so lavishly for them. There is need of some little conservatism in highway projection of the present day.

Buildings.—It has been stated that industrial buildings are also being erected in great number. This is the natural result of the three years of stagnation in this field. Practically every industry that is alive requires more space, and the amount of construction is only retarded by the prevailing high costs. Most of the new buildings are of reinforced concrete, which is rapidly coming to the fore as the leading material for the warehouse or industrial building of simple structural lines.

Two foundation failures during the year are of interest, one, the settlement of the large concrete grain elevator at the municipal dock at Portland, Ore.; the other, the failure of some of the pile foundations under the oil tanks of the Standard Oil Co. at Bayonne, N. J. Both indicate the care with which foundations must be designed and built.

Concrete.—Studies looking toward the making of better concrete first made public in 1918 (*A. Y. B.*, 1918, p. 609) are receiving widespread attention. They were started independently by Prof. D. A. Abrams, of Lewis Institute, Chicago, and L. N. Edwards, then bridge engineer of the City of Toronto, Ont. Their two theories, although apparently in opposition, have possibly a common explanation which, when found, may result in a practice

of concrete making far in advance of anything now accepted.

Both theories involve an analysis of the aggregate and the use of a proper amount of water, and both discard the traditional use of standard mixes of so much cement, sand, and stone. Abrams, as a result of thousands of tests, first discovered that the strength of concrete, of a workable consistency and with aggregate of practical application, is dependent upon the ratio of water to cement, and he then found that this ratio varies with the gradation of the aggregate, which he measures by the sum of the proportions through fixed graded screens. To get concrete of a desired strength with any aggregate, therefore, it is necessary to find the so-called "fineness modulus" of the aggregate and then to use the water-cement ratio that previous experimentation has shown to give a maximum concrete strength for this "modulus." Edwards confirms the water-cement ratio theory but establishes the optimum mix by reference to the sum of surface areas of all the particles in the aggregate. So far the published tests of both investigators are open to some attack in that they are inconsistent, but both demonstrate that the accepted method of proportioning concrete does not lead to uniform results. So many factors enter into the making of concrete that it is difficult to attribute the known variations in the strength of concrete to any simple cause, but there is reason to believe that the ideas set forth by these two experimenters may be the beginning of a new knowledge of what is becoming the leading structural material. (See also *Materials of Construction*, *infra*.)

The concrete ships and barges built during the war (*A. Y. B.*, 1918, pp. 580, 608, 610) led to much study of the material which is proving of value. The unit stress commonly allowed in shear, for instance, would seem to be too small, according to tests by the Emergency Fleet Corporation, and further tests along this line will undoubtedly be made in the next few years. Light-weight aggregate made of crushed burnt clay, giving a strong concrete weighing only 110 lb. per cubic feet against 150 lb. for stone concrete, was used in the

Government ships. It was very expensive, but if economical production can be secured, such an aggregate would have wide structural use where normal concrete is barred out by excessive weight. Concrete tanks for the storage of fuel oil were another development of the war. The scarcity of coal led to the wide use of fuel oil in industrial plants, and the simultaneous scarcity of steel for the tanks led to the substitution of concrete. The problem of making concrete sufficiently tight to hold oil engaged the attention of many engineers, but the number of successful tanks is evidence that the solution was reached.

Bridges.—No record-breaking steel bridges were initiated during 1919, but the longest concrete arch in the world was started at Minneapolis. This bridge, known as the Franklin Avenue Bridge across the Mississippi, has a central reinforced-concrete arch of 400-ft. span, with two flanking arches on each side of 199-ft. and 55-ft. spans. The total length of the bridge with the abutment approaches is 1,032 ft. The longest concrete arch hitherto built is the Risorgimento Bridge across the Tiber at Rome, Italy, with a span of 100 m. or 328.1 ft. The Franklin Avenue main arch has two ribs, each 12 ft. wide, with a thickness of 17 ft. at the springing line and eight feet at the crown. It is reinforced with a heavy steel frame. A steel arch bridge with a covering of concrete of 425 ft. span is being designed for the Multnomah Highway by the Oregon State Highway Department, but work has not been started. Quite a number of large concrete bridges are under construction, including the 4,200-ft. bridge being built by the state engineer of New York across the Mohawk River between Schenectady and Scotia, the Washington Street Memorial Bridge at Wilmington, Del., the Key bridge replacing the old Aqueduct bridge across the Potomac at Washington, the high viaduct at Akron, Ohio, the Soldiers and Sailors Memorial Bridge at Harrisburg, Pa., and two long multispan concrete bridges across the Scioto River at Columbus, Ohio. The bridges at Schenectady, Harrisburg, and Akron will cost well over \$1,000,000; each of the others, except the two at Columbus, will cost

about \$500,000. The only large steel bridge under way is that across the St. Johns River at Jacksonville, Fla., to cost about \$1,250,000, although there are proposals for a number of steel arches across the valley at Pittsburgh and across Newark Bay, N. J.

Early in the year there was built across the Ohio River at Louisville, Ky., the longest and heaviest simple-truss, riveted steel span in existence, replacing the Pennsylvania Railroad historic Fink-truss bridge there. This bridge is 643 ft. 10½ in. in length between the 24-in. end pins. The adoption of riveted instead of pin-connected trusses resulted mainly from the fact that when the Government ordered the Louisville Bridge Co. to provide a 600-ft. clear channel instead of the 400-ft. Indiana channel of the old bridge, the other span had been designed and fabricated with riveted trusses. To preserve unity in the structure the same type was adopted. The bridge is remarkable also because it is the third among the world's simple-truss spans, being exceeded only by the 721-ft. Metropolis span across the Ohio and the 668-ft. St. Louis Municipal Bridge span, both of which are pin-connected. It is about four feet longer than the 640-ft. suspended span of the Quebec Bridge. All of these American bridges exceed in length the longest simple-truss span in Europe, the 610½-ft. Homberg span of the Prussian State Railway over the Rhine at Homberg.

Another interesting piece of steel bridge construction was the reconstruction of the Niagara River arch bridge which carries the tracks of the Grand Trunk Railway across the whirlpool at Niagara. The principal items of the revision are reinforcement of the floor steel of the main span and the trusses of the approach span, placing a drainage floor on the railway deck to protect the steelwork, and renewing the highway floor. Another reconstruction job of interest is the raising of the Pennsylvania Railroad bridge over the Allegheny River at Pittsburgh a maximum height of 13 ft. in order to provide the clearance ordered by the Government in that river. The operation involved the jacking up of the double-deck main spans, designed for six railroad tracks

and the heaviest for their length in the country, without interference with the dense traffic in and out of the Pennsylvania Station. The whole work was carried out successfully within the one year's time limit allowed by the Government.

Nothing further has come of the projects to build large bridges across the Hudson at New York, the Bay at San Francisco, and the Mississippi River at New Orleans, although studies are going on in all three sections. The New York bridge would seem to be put off for some time on account of the construction now under way of highway tunnels under the Hudson from New York to Jersey City.

Dams.—In 1919 the largest and highest multiple-arch dam in the world was completed for the San Dieguito Mutual Water Co., near San Diego, Cal. This is of reinforced concrete, 136 ft. high and 390 ft. long in the arches with 360 ft. of solid section at the ends. Several other large dams were started, among them being the Hetch Hetchy Dam for the new San Francisco water supply, a solid masonry (cyclopean concrete) section 311 ft. above its foundation at the lowest point and 212 ft. above water level on the downstream side. It is 600 ft. long and will be among the great dams of the world. North of New York City work was started on the new Gilboa Dam for additional water supply of the city. It will be 160 ft. high and 1,300 ft. long. At Muscle Shoals, Ala., on the Tennessee River, the Federal Government started a new dam, with locks, for the development of water power and navigation. It will be only 61 ft. high, but its length of 3,300 ft. makes it one of the longest in the world, being surpassed in dams of any considerable height only by the famous Assuan Dam on the Nile.

Inland Waterways.—Another year of disappointment passed in the operation of inland waterways. In spite of much favorable talk comparatively little freight was carried on canals or rivers, though the bettering of terminals went ahead and new carriers were built, which may promise something for the near future. Education of the shipper to use waterways is the great need of the future. Illinois is to spend \$20,000,000 on the so-called

Illinois Deep Waterway, which will provide eight foot depth in earth and 10 ft. in rock *via* the Illinois River from the Great Lakes at Chicago to the Mississippi. It will have 110 by 600 ft. locks. The Government took over the Chesapeake & Delaware Canal, connecting the heads of the bays of those names, and authorized the purchase of the Cape Cod Canal but could come to no agreement with the owners of the latter. (See also IX, *Waterways and Harbors*; and XIX, *Inland Waterways*.)

Railroads.—Railway engineering continued to be almost entirely maintenance, with no startling developments either in design or line revision and of course no new construction. At Chicago and St. Paul the large terminal stations were continued with renewed vigor after the armistice, and at Indianapolis the extensions, grade elevation, and new station improvement, were practically completed.

Some criticism has arisen in the Northwest regarding the slowness of construction and high cost of the new Alaskan Government Railroad, but it appears to be unjustified. Practically all of the \$35,000,000 appropriated for the work has been spent, and there still remains enough work to require an additional appropriation of \$17,000,000, but the times have been unusually adverse to economical construction. At the end of the 1919 fiscal year 366 miles of the railroad had been completed and was in operation. This left 180 miles of the line to be completed. Clearing and grading have been done on 80 miles of the right-of-way, but there is a stretch of 100 miles which is practically untouched although the surveys have been made. The system, as at present constituted, is made up of the old Alaskan Northern Railway, which is being rehabilitated, 71 miles; main line from the terminus of the Alaska Northern northward, 156 miles; main line constructed into the interior, 57 miles; branch line to the Matanuska coal field, 38 miles; and the Tenana Valley Railroad, partially rehabilitated, 44 miles.

Rapid Transit.—Urban transportation has not greatly improved during 1919. The street railways were in a bad way everywhere (see also XIX,

Street and Electric Railways), and there was not much incentive on the part of capital to consider extension of facilities. In New York the new subway system approached completion, two of the main lines being opened, leaving only the outlying lines of the huge system to be completed. In Philadelphia work on the new subways and elevated lines slowed down, and no new routes were opened. Reports on rapid transit were made in Detroit, Cleveland, and Pittsburgh. All three call for street-car subways in the downtown districts, with loops, the main object being to relieve the growing congestion in the business centers of the cities rather than to increase speed of car operation in the outlying districts or in the intermediate zones.

Harbors.—Port development in the United States continues to lag behind the demand. On the Pacific Coast municipalities are more alive to the necessities of the increased importance of this country's foreign trade than in the East, and all of the big cities there have improvements under way running into millions. On the Atlantic Coast little was done in 1919. In New York City the interstate commission (*A. Y. B.*, 1918, p. 580) was continued for another year and ordered to present a final report recommending a definite programme for the development of the harbor as a whole, but mainly on account of the opposition of the City of New York, the proposed treaty with New Jersey, which would establish joint control of the harbor in an interstate body, was postponed. Meanwhile, the City of New York is proceeding toward the construction of a number of large steamship piers on the Narrows side of Staten Island. So far as announced, however, these piers are merely structures and are not tied with any system of freight storage or handling or to any satisfactory railway yards or connections. As this lack of transfer facilities is the main difficulty in New York to-day, the policy of the municipal authorities in opposing any comprehensive development of the port seems shortsighted. Philadelphia, on the other hand, is going ahead with its systematic development of its port by grad-

ual enlargement of its pier facilities and with its admirable railway connections is hoping to get some of the metropolitan commerce.

Much study is being given to the problem of economical and rapid transfer of freight to and from ships, so as to reduce the time of the ship in port and thus increase its productiveness. Handling-machinery manufacturers have formed an association and are working with individual cities and with the U. S. Shipping Board toward this end. So far no very marked improvement has been shown, but the utilization for commercial purposes of the seven big Army bases at Boston, Brooklyn, Newark, Philadelphia, Norfolk, Charleston, and New Orleans, which should come in part in 1920, may point the way to other improvement. These bases were designed with a care never before approached in marine terminals (*A. Y. B.*, 1918, pp. 322, 581), but so far they have never been used to capacity and are now for the most part only dead storage. At the end of the year a plan was under consideration to open their use to commercial interests on lease. (See also IX, *Waterways and Harbors.*)

Municipal Engineering.—City engineering did not recover very rapidly from the slowing down imposed by the war. In some few cases elaborate investigations looking toward the improvement of sewerage and water supply have been undertaken, but in no large city has anything definite been initiated. A number of things, however, were learned during the war that will prove of value in the future. Among these have been developments relating to garbage disposal. Experiences in the disposal of the refuse from the various Army camps will be of value in future municipal disposal. For instance, the disposal at the camps, by means of a classification of the garbage at the source, lessened the volume and grease content of garbage, and this will doubtless lead many cities to utilize vast quantities of fat and fertilizer base that have been going to the dumps or the furnaces. During the year 1918, it is now shown, 40 cities changed from dumping or burning of garbage to feeding it to hogs (see also X, *Refuse Dis-*

posal). Only three cities changed to reduction, chiefly because of war inhibitions on using capital, labor, and materials for building reduction works. Garbage feeding is practicable for large cities. In 1919 Baltimore let a five-year contract under which the garbage of that large city is to be fed to hogs, and St. Louis and Buffalo have made terms for disposal by feeding. This means in St. Louis the closing of a garbage-reduction plant.

Miscellaneous.—Engineers for a long time have felt the necessity of coördinating the engineering work of the Government. At present every Department has some engineering design and construction, and many of the fields overlap to an extent that causes serious difficulty and multiplication of effort. Early in 1919 a congress of all the leading engineering societies was held at Chicago, as a result of which a Federal Department of Public Works was proposed. Later a bill was introduced in Congress to change the Department of the Interior to a Department of Public Works which would embrace all of the engineering activities of the Government. Almost unanimous backing of American engineers is enlisted in support of the bill.

Highway tunnels are a development of the near future. In two places, under the Hudson at New York City and under the hills across the Monongahela River from Pittsburgh, such tunnels are projected. Neither project has been started, but designs are being made by a staff of engineers. In New York City the problem is difficult because of the size required, and study is being made of the comparative possibilities of many small bores

as against one big bore which would be of record diameter.

Airplane mapping is a possibility developed by the war. The aviators on the western front during the war contributed no little to the final victory by the accurate maps of enemy territory they were able to produce with the new cameras developed for that purpose. Government engineers are now engaged in the study of the art. For reconnaissance and large-scale maps it is of admitted value.

Civil engineering continued to contribute to the art of shipbuilding during the year. By this time all of the new shipyards are on a production basis, and both the concrete and the fabricated steel ship, to which the civil engineer gave practically all the knowledge and skill, are proved practicable. The concrete ship, however, does not seem to promise economic advantage now that the war necessity is over. Three of the large ships are carrying cargo successfully, and a number of others are about to be put in commission. The cost is high, however, and the technique of construction is not yet brought to a point where capital is sufficiently interested to risk much money in competition with the steel ship. (See also *Naval Architecture*, infra.)

The necessity for group housing during the war and the millions of dollars spent by the Government on such housing has materially advanced the knowledge of how best to go about such work (see also VI, *Housing*). Although the architects were responsible for the obvious features of such housing developments, the engineers and contractors contributed fully as much in their design of the utilities and in economical construction.

ELECTRICAL ENGINEERING

C. D. FAWCETT

General Conditions.—The trend of electrical development during 1919 continued along the lines outlined in the two preceding issues of the YEAR BOOK. It is particularly enriched by the important discoveries, developments, and special applications that were guarded from public notice during the war period. Practically all electrical research directly due to the

necessities of war is now equally applicable to the new era of peace. Important progress has been made in wireless telephony and telegraphy, in sundry important new applications of electricity in the steel and chemical industries, and in ship propulsion by electricity. The best trained men of the country, equipped with the wide facilities of the industrial, govern-

mental, and private research laboratories, have made discoveries other than those anticipated which open up possibilities of still greater progress. The commercial and industrial world has learned well the lesson of thrift, conservation, and efficiency which was forced upon it. Because of this the increase in mill and factory electrification has been marked. The steel and chemical industries have put aside much antique machinery and applied electrical machinery and new processes for quantity production. The use of electricity for public convenience, including the fields of illumination, street railways, telephony, telegraphy, etc., has been permanently affected by Government restrictions, by the necessity for conservation of fuel, labor, and materials, and by an increasing regard for effective use of available power. The strain put upon central-station capacity by demands for speedy and enlarged production throughout the country seems not to have been relieved by the return of peace. The requirements of European countries for American-made goods have been unusually large, and this foreign demand, together with the need of renewing the normal domestic stocks of our products, has developed production, and consequently power consumption, almost in equal proportion to that of the preceding two years. Scarcity of coal and fuel oil continued during 1919, to meet which every measure of conservation and effective use of power was of necessity grasped by central-station operators. New schedules of load dispatching were put into effect, and many new tie lines and interconnections between adjacent sources of power were made. Some new developments were put into operation, but they include no major projects, although important new developments are projected in the southern states.

The technical societies of the United States have grasped the engineering problems of the readjustment period with all their war-time zeal. Active in this have been the American Institute of Electrical Engineers, the National Electric Light Association, American Electrochemical Society, and the Illuminating Engineering Society. War committees organized by these

societies have been disbanded, and new committees have been formed to cooperate in advancing engineering science to fill the needs of the reconstruction period. Special interest on the part of these societies, the Bureau of Standards, and the International Electrotechnical Commission is shown in the subject of standardization. Standardization of nomenclature, ratings, and dimensions are the leading issues. Manufacturers, distributors, and users of all classes of electrical apparatus are giving attention to this subject. Constructive effort is being made in standardizing specifications of motors, generators, lamps, fans, heating devices, and even the accessory parts such as wire, commutators, shafts, bearings, pulleys, bolts, nuts, and screws. This argues well for a better and cheaper product. The National Service Committee of the Engineering Council has been organized to discover public services that may best be performed by engineering societies, to speak authoritatively on all engineering questions of public interest, and to act as a clearing house for information affecting the mutual interests of engineers and the public.

Government relations with labor, capital, the public and the interrelations of these several groups have had and will have considerable effect on electrical development. Economical production and sale of electrical products will be affected by the decisions which up to this time have not been reached between capital and labor (see also XV, *Labor*). Legislative action on the Water Power Leasing bill (see IX, *Public Lands*) is still impeded by consideration of the Peace Treaty. Definite action on this bill should open up a period of real hydro-electric development. Congress has been requested to appropriate \$200,000 to cover a power-resource survey of the northern Atlantic seaboard and \$50,000 to cover surveys in other sections, but no definite action has been taken to date on this request (see also IX, *U. S. Geological Survey*). Federal control of the railways and lines of communication of the country has raised many diverse opinions as to the effectiveness of Government operation. Federal control of rates of public utilities within a given state

has been questioned by some 38 states, and the case has been brought to trial before the Supreme Court (see also XIX, *Trade, Transportation, and Communication*).

Electrical utilities, with the exception of street railways (see X, *Public Services*), have borne the stress of the war period with considerable success. Conservative financing to await return to normal levels of labor, materials, and money values, however, is necessary if the increased business is to be carried without loss. The cost of electrical apparatus has been increased, along with that of other goods, by reason of scarcity of materials. Iron, copper, and insulating materials, in spite of greater production of raw tonnage, have been scarce, for military and naval consumption and loss, both by this country and its allies, drained the available supply. The supply, however, has recently begun to increase and may soon reach normal unless labor troubles develop further. This scarcity of materials has emphasized the importance of salvaging waste metals in all classes of industry. Many novel schemes of reducing consumption, substitution of other products, and elimination of waste have resulted.

Commercial activities have been largely covered by War and Navy Department orders which have not yet been made public. Domestic trade was conservative in the early part of the year but it was rapidly increasing in the latter part. Exports of domestic electrical apparatus for the 12 months ending June 30, 1918 and 1919, as compiled by the Bureau of Foreign and Domestic Commerce, are shown in the table following.

Central Stations and Power Apparatus.—An analysis of the power distribution of nine of the largest central stations made early in 1919 showed that 60 per cent. of the energy sold was for power purposes. This is typical of the load distribution of most large central stations supplying industrial centers. In Pennsylvania 128 h.p. and in New York State 48 h.p. are the approximate average consumptions per industrial establishment. Forty-two per cent. of the total industrial load of New York State is concentrated in only six cities. Ex-

EXPORTS OF ELECTRICAL APPARATUS

	1918	1919
Batteries	\$3,351,838	\$4,800,668
Carbons	1,525,128	1,672,106
Dynamos or generators	2,688,169	4,269,103
Fans	818,338	1,297,017
Heating and cooking appliances	533,988	1,222,886
Insulated wire and cable	5,730,766	8,683,304
Interior wiring supplies, including fixtures	1,532,309	1,926,177
Arc lamps	13,308	14,550
Carbon-filament lamps	144,761	166,294
Metal-filament lamps	3,182,516	4,465,075
Magnetos, s.p.a.r.k plugs, etc.	3,167,325	3,020,610
Meters and measuring instruments...	1,592,195	2,618,400
Motors	6,598,664	10,677,354
Rheostats and controllers	212,059	434,413
Switches and accessories	2,229,023	2,663,327
Telegraph apparatus, including wireless	294,297	765,011
Telephones	2,566,929	3,135,851
Transformers	2,343,968	4,423,007
All other	16,021,330	24,457,147
Total	\$54,546,961	\$80,712,310

tremely high demands have characterized central-station performance during the year. In the main these have been due to the growth of industrial motor and heating appliance load. Because of its immense capacity, the almost instantaneous increased demand which raised the peak load of the New York Edison Co. from 250,000 to 425,000 h.p. on the afternoon of June 20 should be recorded. This peak was due to a sudden storm overclouding the city to such an extent that practically the full lighting load of all office and commercial establishments was placed on the lines.

The capacity of the stations of the New England states was increased by 50 per cent. and the connected load by 75 per cent. during the four years of the war, yet through increased efficiency the fuel consumption was decreased by 10 per cent. per kilowatt-hour. Several important inter connections contributed to this saving. A recent report of the Bureau of the Census covering statistics for 1918 indicates that 12,857,988 h.p. from primary sources was developed. Of this, some 8,389,389 h.p., or about

two-thirds, was generated by steam; 4,251,423 h.p., or about one-third, by water; and 217,186 h.p. by internal combustion engines. The aggregate output of electrical energy for 1918 was 25,438,611,417 kw.-hr.

Continued increase in motor load has caused a lower average power factor. To offset this new load-dispatching schedules and a wider use of over-excited synchronous motors have been adopted. A new device called the oscillating phase advancer, for use with wound-rotor induction motors, also has proved successful in raising power factor. This tendency towards lower power factors has been the source of many new rate schedules which have been designed to encourage the use of apparatus of higher power-factor characteristics.

Interconnection of power sources has helped to supply the demand for more power and to regulate the distribution of undesirable low-power-factor loads. In New York City alone the loads of some 72 private plants were transferred to central-station service, largely because of the scarcity of fuel and operators. Within the past five years the number of municipal stations has increased 50 per cent. whereas the privately owned stations have increased only 15 per cent. In the same period our aggregate central-station output has practically doubled. A certain tendency toward larger water-power projects has been noted. The U. S. Geological Survey estimates that only one-sixth of the available water power of the country is now being utilized (see also IX, *U. S. Geological Survey*). In the central and northern sections of California hydro-electric development to replace the lack of fuel oil and in order to carry the increasing irrigation and industrial load is imperative. To relieve the situation a 10,000 kw. line has recently bridged the gap which separated important systems in that region and tied together the large systems from San Francisco to the southern part of Oregon. It is estimated that this connection will save 20,000 bbl. of oil annually in the city of San Francisco alone.

A competent authority has stated that the power capacity of steam turbo-alternators can be increased by

three or four times the capacity of the largest present units with equal factors of safety (see also *Mechanical Engineering, infra*). The Interborough Rapid Transit Co. of New York City has operated a newly installed 60,000-kw three-cylinder cross-compound turbine unit, consisting of three 20,000-kw. generators mechanically driven by one high-pressure and two low-pressure turbines and electrically connected in parallel, delivering 25-cycle energy at 11,000 volts. The Niagara Falls Power Co. has placed orders for three 32,500-kw. water-turbine units rated at three phase, 60 cycles, 12,000 volts, to be operated with grounded neutral. Each turbine and generator will weigh approximately 300 tons. The Hydro-Electric Power Commission of Ontario has under construction two 50,000 kv.-a., three-phase, 25-cycle, 187-r.p.m., vertical-shaft water-wheel units to be installed at Queenstown. These five enormous units far exceed the capacity of the largest water-wheel generators now in operation. A recent Government report by authorities of the Dominion of Canada showed that in 1917 Canada had 470 central stations aggregating 1,844,600 h.p., 90 per cent. of which was generated by water power.

In the field of switchboard apparatus progress has been made in the development of a standard unit plunger-type relay with less parts, with better electrical and mechanical characteristics, and adjustable to give instantaneous, inverse time-limit, and definite time-limit operation. A new type of air break disconnecting switch has been designed to operate at 100,000 volts with rating of 5,000 kv.-a. on the charging current of a 100-mile line. Its successful application and economies of construction should make it adaptable to a large field of usefulness. Lightning-protective apparatus has been improved by the use of a combined sphere and horn gap between the line and arrester, the points, horns, and spheres giving selective discharges from high-frequency surges of various wave fronts.

Predicted transmission at 250,000 volts has not yet been tried out although it has been suggested that a 220,000-volt line should interconnect

all the major central stations between Boston and Washington, D. C. Detailed investigation proved the entire practicability of this installation. A 110,000-volt line crossing the St. Lawrence River on a span of 4,800 ft. between towers 350 ft. high has been constructed.

Electric Transportation.—Many interesting facts concerning the status of the electric-railway industry of the United States were brought out by a special commission appointed by the President to examine into its condition. On May 31, 1919, a total of 62 companies having 5,912 miles of single track were in the hands of receivers; 60 lines having 763 miles of track had been sold as junk; and 38 lines having 257 miles of track had been abandoned. Thus approximately 16 per cent. of the total electric-railway mileage of the country had been adversely affected by war conditions. The total investment in the electric-railway industry approximated \$6,000,000,000 at this time. Operating expenses have increased by an average of 20 per cent. whereas operating revenues have increased only about six per cent. These conditions have necessitated increases in fares in some 425 cities and have led to trials of many types of cars and changed conditions of service in an attempt to lower operating costs. Automatic, one-man operated cars have been tested and found satisfactory in cities of populations up to 400,000. Service has been speeded up by adoption of the front-entrance and pay-as-you-leave center-exit type of car. The trailer has been helpful in handling rush-hour traffic. The zone system has been tried in many cities; on the whole, however, it cannot be rated as highly satisfactory. New rates of fare have ranged from six cents to 10 cents. (See also X, *Public Services*.)

The approximate electric-railway mileage at the end of 1919 was 50,000 miles of trolley track and 8,300 miles of heavy trunk lines. Some 441,700 miles of unelectrified steam lines still offer hope of electrification in the future. Some 400 electric locomotives of 20 different types haul the main-line traffic. The annual coal and fuel-oil consumption for steam-locomotive operation approximates 125,000,000

tons. On the basis of an operating economy of 2.2 lb. of coal per kw.-hr., the annual requirements for electrification of all present steam mileage would be about 40,000,000 tons, thus saving 85,000,000 tons of coal per year, or about one-sixth of the entire coal consumption of the country.

No great increase in main-line electrification was made during 1919. The Chicago, Milwaukee & St. Paul Railway increased its electrification to a total of 660 miles by putting in operation 218 miles of track through the Cascade Mountains. Substations on this branch are supplied at 110,000 volts and deliver 3,000 volts to the trolley. The electrified system of the Great Northern Railway operated its full traffic over 75,120 miles in 1918 at an operating cost of 0.3545 cents per mile. In this case electric locomotives of 1,000 h.p. handled traffic in the Cascade Mountains on a grade of 1.7 per cent. These two pioneers in main-line electrification have no hesitancy in extending their electrified systems. Regenerative braking continues to be favored in heavy-duty service. Specific tests have shown that a train on a two per cent. down grade has returned to the line 42 per cent. of the power taken to pull it up the grade. The Chicago, Milwaukee & St. Paul approximates a regeneration equivalent to 11 per cent. of the total power used. Automatic substations have been installed on a number of new extensions and in some cases have displaced attended stations. In all cases their operation has been efficient and economical. One of these installations includes a two-unit synchronous-converter equipment controlled to provide automatic operation of the units singly or in parallel as required by the load. No radical new departures in general type or equipment of locomotive or electric-railway rolling stock have been noted.

The Government has continued to be the chief advocate of electric marine propulsion. Departing from the path of conservative adoption of untried propelling machinery, several years ago the naval collier *Jupiter* was equipped with electric propulsion apparatus. Since that time super-dreadnoughts have been electrified with even greater success. Recently

the Secretary of the Navy gave testimony to the House of Representatives to the effect that the *New Mexico*, the first superdreadnought to be so operated, had attained a speed of $21\frac{1}{4}$ knots with a displacement of 1,000 tons in excess of her designed capacity, while her rated speed was 21 knots at normal capacity. During these tests 3,100 h.p. was developed, whereas her rated output was 26,500 h.p. At a cruising speed of 10 knots she steamed on 25 per cent. less fuel oil than the best steam-turbine-driven battleship. Electric drive has not been tried out on merchant ships, but there is reason to believe that it may be widely adopted in the future.

Electrical Communication.—On July 31, 1919, the telegraph and telephone systems of the country were returned to their respective owners by Act of Congress. Government control did much to coördinate the methods of communication. To some extent contemplated improvements by private owners were hindered, but a new distribution of traffic loads was established which would have been impossible without unity of control. (See also XIX, *Telegraphs and Telephones*.)

The automatic telephone has had another year of remarkable growth. Its importance is further established by successful interconnection with manually controlled systems. Some 129,000 stations in Los Angeles, almost equally divided between the two systems, were interconnected and have given excellent service. Multiplex telephony, mentioned in the *YEAR BOOK* for 1918 (p. 587), assumed great importance in 1919. Added traffic possibilities on existing lines may be increased from three to five times. The principle of multiplex operation depends upon the use of vacuum-tube apparatus which automatically separates the voice currents from different stations and by selective tuning produces "carrier currents" of various frequencies which are then transmitted over the single circuit to similar selective receiving tubes at the distant end. The future holds promise of great development for multiplex telephony. Inductive interference has been largely eliminated by coördinated transpositions of telephone and power cables. Where such transpositions

were not feasible, resonant shunts have proven effective.

Telegraph-line construction has been made more permanent by using stronger and shorter poles and by decreasing the spans. Although this points to unsightly line construction, there is noted a certain trend towards an almost universal adoption of underground cables within city limits, and in the future this may even extend into the open country. Telephone transmission favors the use of galvanized wire on crossarms where the route contains 10 to 15 circuits, with the use of twisted-pair wire held to a minimum for connections between pole line and subscribers' premises. Where future growth indicates an excess of 200 or 300 circuits, underground cable is favored. Wire of smaller cross section, even down to No. 24 gauge, is theoretically practicable for small circuits in local exchange zones, and considerable attention has been given to the economies of smaller sizes.

The commercial development and application of vacuum tubes (thermionic devices) to all branches of telephony and telegraphy is affording remarkably sensitive transmission in both physical and wireless systems. By means of these tubes, specially designed and tuned for the various operating conditions, telephone communication to and between airplanes is entirely practicable; the radio compass locates positions of airplanes and ships at sea; and even the submerged submarine has been able to communicate with the hydroplane above the water. Electric currents heretofore too minute to be detected have been amplified through ranges hitherto not within practical control. Used as detectors, amplifiers, oscillators, and modulators, vacuum tubes have taken the foremost place in the electrical field for the year 1919. The rate of production early in 1919 was 1,200,000 per year. Since military needs have been reduced, this rate has been cut, but the increase in the application of vacuum tubes seems to indicate that the war demand will soon be equalled.

Paralleling the invention of the recording telegraph for wire systems, a recording device for radio signals has been successfully applied. Heretofore

it has been impossible to receive wireless signals at the speed with which they could be sent. The wireless recording instrument, however, has been standardized to receive 200 words per minute, whereas an expert operator is limited to some 35 words. A photographic record indicates the dots and dashes of the message which can be deciphered at leisure. Radio-transmission by the "sustained wave train" is largely displacing the "spark" system. High-frequency generators have made this practicable. The development of wireless will soon reach a point where connections between Australia and Canada or New York and Pekin will be commercially practicable. Airplane and dirigible navigation across the Atlantic in 1919 (see *Aeronautics, infra*) owed its success largely to the perfection of radio facilities stimulated through war research. Restrictions covering the use of amateur, technical, and experimental radio stations were removed by the Navy Department on April 15, 1919, thus adding a new field for the advancement of wireless research and invention.

Electric Illumination.—Intensive study of the effects of proper lighting on production has suggested the desirability of greatly increased intensities. In fact, the belief is becoming quite general that intensities of illumination should be raised far above those which are now used, not only in the industries, but also in highway, office, and home lighting. Standard lamps for industrial purposes range from 75 to 1,000 watts, and for office and home illumination from 25 to 60 watts. A decided tendency toward the increased use of the 50-watt lamp, replacing the 25 and 40-watt sizes, has been noted. About 90 per cent. of all lamps sold were of the tungsten-filament type. The gas-filled lamp had its greatest sale in the 75-and 100-watt sizes. Changes in design and improvements of incandescent lamps have been of minor importance during the last two years. A 900-watt, 30-amp., 30-volt incandescent lamp and a 600-watt, 20-amp. 30-volt lamp have been standardized for motion-picture projection and have proven successful. They are tubular in shape instead of round as formerly. A 50-watt white

glass gas-filled incandescent lamp with a tipless bulb, giving excellent diffusion, has recently come upon the market and the initial sales indicate a large demand for it. A "mill-type" incandescent lamp which mounts the filament by a flexible steel wire to the base to absorb vibrations is in the experimental stage.

The War Department developed many new lighting units during the war. Perhaps the most spectacular was a high-intensity mobile searchlight five times as powerful as former models, giving 250,000,000 beam c. p. Its metal reflector was 60 in. in diameter and the arc current was 500 amp. Miniature lamps for flash lights and automobile service sold in enormous quantities during the war. The railways of the country are adopting and standardizing headlamp specifications, but these are not yet ready for publication.

No material change in street-lighting design has been noted during 1919. The incandescent lamp still is favored over the arc lamp. Recent developments in transformers permit of automatic control of series street-lighting circuits at any distance from the power house, thus eliminating the expense of constant-current control at distant points. An interesting new development is the operation of street lamps from existing multiple or house circuits, in which the lamps are controlled by clock switches. Extensive use of the automobile for touring is creating a demand for better lighted highways outside city limits. Decorative lighting, which lagged under restrictions and for economic reasons during the war, has been prominently featured in many large cities, largely for the purpose of welcoming and doing honor to returning soldiers and sailors.

No definite data on the amount of fuel saved through "daylight saving" can be given since the abnormal changes in load prevented accurate estimates. It is claimed by certain authorities that approximately five per cent. of the normal consumption of central stations was saved. Congress definitely terminated daylight saving by Act of Oct. 26, 1919 (see I, Congress; and XVI, *Agricultural Legislation*).

Research and Invention.—The annual report of the Director of the Bureau of Standards emphasizes the special work being done with vacuum tubes and X-ray apparatus. During 1919 the Bureau has also been active in the development of standards of resistance, inductance, and capacity. The American Institute of Electrical Engineers has cooperated with the electrical manufacturers to investigate and standardize electric-cable characteristics, such as heating, insulation, etc. The National Research Council recently organized a special committee for research in the field of insulation and insulators. The general trend of research is dominated by the work being done on vacuum tubes, involving studies of atomic phenomena, and by insulation investigations. Particular attention has been given to dielectric losses and potential stresses in dielectrics with special reference to three-conductor cables. Much work on porcelain insulators of all types has been done. The mechanical strength, hardness, density, absorption, and equalization of potential gradients have been extensively studied. (See also XXIII, *Physics*.)

Applications of Electricity.—Industrial applications of electrical energy during 1919 continued along the lines under development in 1918. The features of the year have been the use of electric energy for melting and refining steel; in shrinking pits and furnaces; in brass furnaces; in coke-baking ovens; heat treatment of castings and forgings; spot and arc welding; applications in the chemical industry; and a very great increase in standardized motor drive, especially in the steel and metal-working industries. The impetus given by war activities naturally is reflected in this summary.

Steel having an ultimate tensile strength of 90,000 lb. per square inch and an elastic limit of 50,000 lb. per square inch has been consistently produced by the electric furnace and with considerable economy over the coke-fired furnaces (see also XXIII, *Electrochemistry*). Furnaces up to 3,000 kv.-a. capacity have been used. The kilowatt-hours per ton of steel average 600 to 800. Brass furnaces up to 300 kw. capacity have been success-

fully operated. Gun furnaces for shrinking purposes were made as large as seven feet in diameter and 90 ft. long, consuming 1,000 kw. in 1,728 heating units with an overall thermal efficiency of 80 per cent. Electric furnaces have been used extensively for heat treatment of crank shafts, cast-steel anchor chains, draw-bar knuckles, blooms and billets, drop forgings, castings and rails. These parts were used in ships, armored cars and tractors (tanks), automobiles, and airplanes. Electric heating devices purchased for household use during 1918 were practically double the sales for 1914. The following estimated numbers of devices were in use in May, 1919: 150,000 grills, 90,000 heating pads, 10,000 teapots, 250,000 radiators, 4,000,000 irons, 480,000 toasters, 150,000 percolators, 40,000 chafing dishes, 250,000 disks, 50,000 ranges and hot plates, 35,000 water heaters, and 25,000 miscellaneous. These figures, showing the increase in heating-appliance load for industrial and household purposes, support the contention that the heating load may eventually surpass all other loads in total volume.

The theory and practice of electric welding, particularly arc welding, advanced more in 1918 and 1919 than in 20 years previously. Spot-welding machines up to 700 kv.-a. for welding steel plates up to 1½ in. thick were manufactured and tested. These tests, however, left much to be desired. The electrodes were capable of withstanding only five to 20 welds owing to the great density of current and pressures applied. The commercial application of spot welding heavy plates must therefore await further development. On the other hand, arc welding, principally with bare-metal electrodes, was applied successfully and economically by hundreds of welders. Both alternating and direct current were used, the latter being favored because of its ease of manipulation and more consistent results. The Emergency Fleet Corporation with the assistance of the American Institute of Electrical Engineers and manufacturing concerns made exhaustive studies of welding in all its branches. The rapid production of Liberty motors, ships, automobiles, and ordnance

in the United States during the war owed its success largely to various forms of welding.

Other important applications include the use of electric power for the production of synthetic nitrogen and other chemicals (see also XXIII, *Electrochemistry*). A new Government nitrogen plant requiring an initial capacity of a 60,000-kw. generator and an ultimate capacity of 120,000 kw. was installed at Muscle Shoals, Ala. The iron and steel industries required some 900,000 kw. capacity during 1919, of which about 650,000 kw. was for motor drive and 250,000 kw. for electric furnaces. Electric precipitation of solids from gases has assumed considerable importance in the last few years and may become widely used in the future.

Bibliography.—The major part of the foregoing review has been extracted from technical papers and editorials published during 1919 in the *Proceedings of the American Institute of Electrical Engineers*, *Transactions of the Illuminating Engineering Society*, *Electrical World*, *General Elec-*

tric Review, *Electric Journal*, and *Electric Railway Journal*. The following important books on electrical science and engineering were published during 1919:

- AUSTIN, F. E.—*Examples in Alternating Currents*. (Los Angeles, Austin Publ. Co.)
- BARR, J. R.—*Principles of Direct-Current Electrical Engineering*. (New York, Isaac Putnam and Sons.)
- FAIRCHILD, C. B.—*Training for the Electric Railway Business*. (Philadelphia, Lippincott.)
- JACKSON, D. C.—*Elementary Electricity and Magnetism*. (New York, Macmillan.)
- JACOBY, A.—*Electricity in Medicine*. (Philadelphia, Blakiston.)
- KIRKINAN, M. M.—*Electricity Applied to Railways*. (Chicago, Cropley Phillips Co.)
- PENDER, Harold.—*Electricity and Magnetism for Engineers*. (New York, McGraw-Hill.)
- RIDRAL, E. K.—*Industrial Electrometallurgy*. (New York, Van Nostrand.)
- STILL, Alfred.—*Electric Power Transmission*. (New York, McGraw-Hill.)
- Principles of Transformer Design*. (New York, Wiley.)
- TIMBIE, W. H., and HIGBIE, H. H.—*Essentials of Alternating Currents*. (New York, Wiley.)
- WILLIAMS, J. C.—*Cutting Central Station Costs*. (New York, Wiley.)

MECHANICAL ENGINEERING

CALVIN W. RICE and LEON CAMMEN

General Conditions.—In many respects the world is now passing through the same condition that was created in England in the Middle Ages by the so-called Black Death. That plague reduced the available manual labor to an extent sufficient to cause a permanent rise in the wage level, and it was undoubtedly the prime contributing cause of the development of mechanical arts in Great Britain. But there is an important difference in the situation of to-day, namely, that the wealth of the world, notwithstanding the tremendous destruction during the four years of the war, is thousands of times greater than it was in medieval England. What we have to do, therefore, is to meet an increased demand for goods with depleted ranks of labor. This means more intensive production and a wider use of mechanical appliances.

In a previous issue of the YEAR BOOK (1917, p. 555) the prediction was made that the end of the war would see a material reduction in the

standard hours of labor because of the necessity of more intensive utilization of labor. This prediction is coming true, in spite of lowered production, due to the erroneous conception of certain leaders of labor, sincere though they may be, that lessened hours of labor will better distribute the available work among a greater number. The expected adjustment is being gradually carried out, unfortunately not always in as orderly a manner as might be desired. (See also XV, *Labor*.)

Another apparent tendency which may be expected vitally to affect the future of all industries is the increased value placed on scientific and engineering research as a result of its great achievements during the war, and also of the necessity for automatic machinery to offset in part the high cost of labor. The novel and important problems brought up by war conditions required immediate solution and theoretical and "practical" men were brought together to solve

them who would not have coöperated under any ordinary or previous conditions. As a result of such coöperation not only were many problems solved that would have baffled each of the participants individually, but both classes acquired respect for each other and a new insight into what could be done by such organized and coöperative research. There can be no doubt that from now on American industries and universities will keep in touch to an extent undreamed of some five or six years ago, except in Germany. Such coöperation, not generally realized elsewhere, has existed in Germany for years and materially contributed to the strides made by German industry in the 30 years before the war.

Steam Engineering.—The question as to the relative advantages and disadvantages of very large steam-turbine units has been a very live one during the past three or four years. As shown by J. F. Johnson in a paper before the American Society of Mechanical Engineers, the large turbine has undoubtedly advantages in simplicity of operation. Take, for example, a district with the maximum peak requirement of 600,000 kw. To ensure reliability it is decided to generate in three stations of approximately equal size operating in parallel and having one spare unit for each five in service during the peak. If 20,000-kw. units were used, there would be 30 operating and six spare units, a total of 36 units, 12 in each station. If 60,000-kw. units were used, there would be 10 operating and two spare units, a total of 12, four in each station. Everything else being equal, the installation and operating costs per kilowatt of output would be less in the latter case; the dependability of the entire system would be greater because of the smaller number of operations of starting and stopping; but, on the other hand, the wreck of one big unit might cause greater disturbance than the wreck of a small unit. As a matter of fact, however, everything is not equal, and the improved methods of manufacture and the great care paid to the design of large units makes their reliability, as a class, higher than that of the small unit.

The subject has been taken up by

the National Electric Light Association and a report of its Prime Movers Committee has recently been published. It is the opinion of this Committee that, in general, higher efficiencies at equal or less cost per kilowatt of output can be obtained as the size of the unit is increased, particularly in capacities up to 30,000 kw., but it cannot be assumed that the size of single-shaft units can be increased indefinitely. It would appear, in the opinion of the Committee, that with the present prevailing frequencies, speeds, and the recognized factors of safety, efficiency, and cost, the size of systems to-day will hardly warrant units larger than 30,000-kw. capacity. At the same time turbines of such sizes as 60,000 kw. are actually being employed by the Interborough Rapid Transit Co. of New York City (see also *Electrical Engineering, supra*), but as the stations are of a capacity of the order of 200,000 kw., these big machines are comparatively small units considering the total station capacity. In the last two years there have been several wrecks of the extremely large units of recent manufacture. They should not be taken, however, as a measure of quality for this type of machinery, because they were produced under unusually unfavorable conditions which do not now exist.

That the turbine of capacity in excess of 30,000 kw. is attractive to power-plant men is shown by the fact that the Duquesne Light Co. of Pittsburgh has recently installed a 45,000-kw. cross-compound steam turbine. This turbine has a new feature, in that a device is installed for cutting out one side of the turbine if for any reason its immediate removal from service becomes necessary, and this device may also operate automatically. By this means the 45,000-kw. machine has the flexibility of a 22,500-kw. unit.

In addition to using larger units for power generation, power-plant engineers have for some time considered the economies possible from another source, namely, from the use of high-pressure and superheated steam. In a paper read before the Institution of Electrical Engineers (London) it is shown that a good case can be made out for a jump to 600 lb. pressure with a total temperature of 700° to

800° F., but this would involve a considerable amount of development and experimental work. On the other hand, it appears that practically all designs of existing apparatus can be so modified as to admit of pressures from 350 to 400 lb. per square inch.

If pressures of 500 to 600 lb. per square inch be adopted, radical changes will have to be made in present boiler construction. All square boxes and headers will have to be eliminated, the drums and tubes made smaller in diameter, and the design of the boiler made more elastic. The type of boiler will probably assume the appearance of a flash boiler with practically no steam or water reserve, fired by gas on the surface-combustion principle. There are already boiler concerns willing to supply commercially boilers for a working pressure of 475 lb. per sq. in. with steam superheated to a final temperature of 700° F. That the industry is getting ready for such conditions is shown by the adoption (by the Kansas Light & Power Co.) of steel economizers. The conditions of boiler operation of the present day lead to increasingly high flue-gas temperatures and greater quantity of gases passed in a unit time interval. These conditions are favorable to the employment of economizers, especially with large boilers. But as the pressure rises, cast iron, which has hitherto been used exclusively for this type of apparatus, becomes less and less reliable, and steel has to be adopted. In the present case the economizer is made up of two parts, the low-pressure section of cast iron and the high-pressure section of steel, the construction of the latter being somewhat like the section of a Sterling boiler.

With higher steam pressures the temperature of saturation is raised, and because of this greater care must be exercised over the quality of the water used for the boiler feed. A feedwater that is perfectly satisfactory at 300° F. in a modern tubular boiler might be quite unsuitable for use in a flash boiler. The quantity of air, carbon dioxide, and oxygen have to be kept down to a minimum, and also the non-soluble salts that are generally in the water discharged from an ordinary lime-soda water softener.

In this connection it is of interest to note an investigation recently carried out in England on atmospheric pollution by gases escaping from power plants and industrial establishments. The report of this investigation points out that a large proportion of the gases and dust coming from the smokestacks of factories and chemical plants are absorbed by rain water and in this way return first to the ground and eventually to the factory boilers, where they are apt to play havoc with the boiler plates and tubes. This would indicate that air in some cities that is not good for the lungs of their inhabitants is also bad for the metal in the boilers of their factories.

Outside of the developments indicated above there have been comparatively few notable novelties in the field of steam engineering generally. A good deal of progress has been made in the design of small and medium-sized turbines for mechanical drives, which have been finding an increased application in the direct drive of pumps, fans, and other moderate-speed apparatus. Rather novel is a new type of pneumatic steam-engine governor recently developed by an American concern, in which air replaces the metal balls and weights as well as the connecting linkage levers between the centrifugal elements and the valves. The only running part is a plane disk with vanes on the side of it which is bolted to the end of the shaft. Air forms the connecting medium between it and the other moving parts, and these move only on a change of speed due to a change of load.

Fuels.—The rising cost of fuel during recent years has led to intensive research for means of better utilization of the fuels available and utilization of kinds of fuel to which but little attention was formerly paid. During this period the use of pulverized fuel has become definitely established and methods have been developed for burning such cheaper grades of coal as lignite. In Germany extensive work has been done towards evolving methods for burning small coke under boilers. In addition to these, several developments of a still more basic nature have recently taken place. It is stated that the Submarine Defense As-

sociation, a patriotic organization established during the war, has succeeded in developing a colloidal fuel consisting of a fuel oil in which pulverized coal is held in suspension. Because of this consistency the fuel flows freely through preheated pipes to burners equipped to burn fuel oil, and a considerable saving in the overall cost of the fuel is claimed. A special material was needed to cause the pulverized coal to be held in suspension in the fuel oil, but no data of its nature have been published as yet. Another application of the colloidal-suspension principle to production of fuel has been made with pressure-still residuals which hitherto have been quite neglected. From these residuals a fuel is prepared very low in sulphur and therefore especially applicable to making high-grade alloy steels. Research has also been done on blending petroleum oils and coal tars to ascertain whether it is practicable so to stabilize the mixture that free coke and asphaltic substances will not settle out but will produce a stable liquid fuel that can be shipped, piped, and stored.

Still greater possibilities for the future are promised by another development in fuel conservation, namely, low-temperature distillation of coal. Such distillation is carried out in closed retorts at temperatures ranging from 700° to 1,200° F. and gives a coke good enough for use in a fuel bed under low draft. In addition to this, various by-products are obtained, such as tar, gas, and moderate amounts of ammonium sulphate. The important feature of this process, however, is, that if it is carried out in plants using 50 tons or more of coal per 24 hours and operating continuously 24 hours per day, the by-products recovered have a value sufficient to pay for the coal and the distillation and yet give enough heat units to carry on the work of the plant. In this way, for all practical purposes, the plant would obtain its fuel free.

Internal-Combustion Engineering.

—It was known for some time before the armistice that important progress had been made in several fields relating to internal-combustion engines of the constant-volume type, that is, the engines used in motor cars, tractors,

and airplanes and to a large extent for the propulsion of small and medium-sized motor boats; but it was only when the veil of military secrecy was lifted that the extent of this progress made became apparent. An important contribution to our knowledge of engine design and operation was made, for example, in the publication of the description of the Liberty motor and of the extensive experimental research carried out by the Government at McCook Field, at Dayton, Ohio. This research covered not only development work on the Liberty engine itself, but also extensive and careful experimentation on carburetion, cooling, lubrication, crankshaft design, etc. (see also *Aeronautics, infra*).

Several tendencies are becoming apparent as a result of the work carried on during the war. The use of air-cooled engines for airplanes has materially increased our knowledge of the design of engines of this type, with the result that already a more extensive application of air-cooled engines for motor-car use is in prospect. Thus far, it has appeared principally in England, although in America also a new air-cooled motor car has been placed on the market. This car, however, was largely designed before the entrance of this country into the war. The use of aluminium-alloy pistons has apparently come to stay, and improved types of pistons which permit far better cooling than the conventional type have made their appearance. The Ricardo piston, for example, has been successfully used in several thousand British tank engines. In the field of lubrication likewise important progress has been made. Extensive tests have given a clearer insight into the properties of oils suitable for various kinds of engines. This enabled the building up of lubricants especially suited to given conditions and, among other things, made it possible to use mineral-base lubricants for airplane engines to which formerly only castor oil was considered to be applicable. Better knowledge and better methods of testing of lubricants have also enabled the Air Service to reconstruct used oils from the crankcases of airplane engines at a great saving in money and material and without lowering

the standard of the lubricant required for this work.

The most important advance in internal-combustion engineering, however, probably consists in better knowledge of fuels and their behavior in engines. Tests on the Liberty engine, and particularly on special high-compression units, have given an opportunity to observe the behavior of fuels, with the result that it proved to be possible to build up what may be considered as synthetic fuels that will withstand conditions under which such fuels as kerosene and gasoline become impracticable. Experiments with benzole and products of hydro-generation such as cyclohexane, as well as various mixtures of benzole, gasoline, and alcohol, have shown that it is possible to produce fuels on which engines of the constant-volume type can be run with compressions as high as 200 lb. per square inch. It may be added in this connection, however, that the same experiments have shown that practically nothing is gained, at least in aeronautical engines of the present type, by carrying compression to such a height.

Important new possibilities are being opened by the application of the principle of superinduction, which means operating an engine with pressure in the cylinder at the end of the suction stroke above atmospheric pressure. The idea itself is not new. It has been used in two-stroke-cycle engine from their inception, and now and then it has also been applied to four-stroke-cycle engines, but the faulty designs of these engines in other respects prevented securing the full benefits from it. Lately, however, superinduction has been applied with a better understanding of the principles governing combustion and with highly gratifying results. This application of superinduction took place in two directions. First, it was applied to motor-car engines, for example, by Kessler, who used crankcase compression for this purpose. Next it was applied to airplane engines to enable them to deliver full power at high altitudes. In this latter application the air pump was driven by a turbine operating on the engine exhaust. Units involving great ingenuity of construction have been built on this prin-

ciple by Professor Rateau in France and by Sanford A. Moss and E. H. Sherbondy in this country. Although tests at the Bureau of Standards in the special high-altitude laboratory have shown that superinduction does for the engine all that it is desired to do, experience in actual flights has so far given less gratifying results, due largely to the fact that constant-pitch propellers were used, which were driven at high altitudes at speeds in excess of those at which they gave the best efficiency. It may be mentioned in this connection that extensive work has been done on the subject of variable-pitch propellers by Army engineers at the McCook Field. (See also *Aeronautics, infra.*)

The great demand for Diesel oil engines during the period of the war, especially to drive submarines, brought about certain developments in the design of constant-pressure engines generally, as a result of which new types have been produced in such number that designations such as Diesel, semi-Diesel, etc., have lost practically all their meaning. The Doxford oil engine, which was first built as a Diesel engine, has been changed to a hot-surface type with solid injection of fuel, which latter feature, by the way, is rapidly gaining in favor among engine designers. In the Doxford engine the fuel pump is driven through a small crankshaft and a camshaft set at 120°, three rams being used so that the work may be divided over the revolution to eliminate the very heavy shock that would result if but one ram were used. These rams force the oil into two small air vessels initially charged with oil at a pressure of 1,000 lb. per square inch, the ram pressure being 8,000 lb. per square inch. The remarkable feature about the construction of the pump is that no packing is required notwithstanding the enormous pressure used. Radical departure from standard practice in this engine may also be seen in the fact that instead of attempting to keep the piston as cool as possible, every effort is made to allow the crown to reach a temperature of not less than 1,000° F. It is the piston crown that forms the hot surface really firing the charge with heavy oil. In the Crossley heavy-oil engine a spheroidal

shape of combustion chamber has been adopted, the arrangement being such as to create turbulence in the chamber and thereby to secure good mixing and good heating of the charge.

The Still engine, claimed to be a novel type, has been announced in a lecture before the Royal Society of Arts in London. In this engine the jacket water is deliberately brought to a point of steam formation; the steam is then delivered to the engine and acts on the side of the piston opposite to that on which the ignition of the mixture takes place. It is claimed that thereby a certain amount of heat otherwise lost to the cooling jacket is recovered by the steam action; furthermore, the cylinder walls are maintained at a higher pressure than would otherwise be possible and thereby a higher thermo-dynamic efficiency is secured. In this connection it may be well to call attention to a paper presented by Sir Dugald Clerk before the Northeast Coast Institution of Engineers on "The Limits of Thermal Efficiency in Internal-Combustion Engines," in which it is shown that we have very nearly approached, at least as far as high-compression engines are concerned, the possible limits of thermal efficiency, and that in particular heat recovery from the water jacket does not promise any material saving.

During the war there were many rumors on both the Allied and the Teutonic side of some wonderful improvement in Diesel engines and of the development of a gas turbine of stupendous power. Information that has become available since the signing of the armistice shows that there was very little truth behind these rumors. Nevertheless, it should be recognized that work on gas turbines is continuing, and that it is becoming more and more likely that good results will sooner or later be achieved with this type of prime mover. In fact, statements in the technical press would indicate that promising results have been obtained already with the so-called Sanders pressure turbine, in which the place of the cylinder and piston of the reciprocating engine is taken by two skew gears in mesh, a second pair of similar gears being used to compress the air needed to give firing condition to the mixture.

Hydraulic Engineering.—The unusually high cost of mineral fuel and its scarcity in several countries has naturally led to an increased interest in water-power development. War conditions were not conducive to experimentation on new prime movers, but the vital necessity of keeping such as there were in operation led to increased attention to such subjects as governing of water turbines and flow conditions in pipes. On governors a large amount of work was done in France and Switzerland. Bouchayer and Viallet, two French engineers, have developed an automatic siphoning apparatus designed to arrest automatically the flow of water in piping under pressure whenever there has been a rupture of the piping. In the hydro-electric plant at Kubel, Switzerland, a new type of Escher-Wyss governor has been employed. Its main feature lies in the fact that the interruption of the governing movement is much closer in time to the emergency that produces it than it was in the older type of apparatus; in other words, the apparatus is far more responsive than it used to be. An entirely novel system of governing, known as the Seewer system, was also developed in Switzerland, for application in particular to Pelton wheels. In this system guide vanes are used on both sides of the needle in the discharge nozzle, the arrangement being such that ordinarily the stream is directed fully on to the wheel buckets but may be scattered, if desired, so as to produce only partial or no loading of the wheel.

Another subject which attracted a good deal of attention was surging in pipes. In the *Engineering News-Record* for May 29, 1919, data are reported of tests made to determine the actual effect of varying the conditions in two pipes equipped with air chambers and of changing choke-gate areas. These tests have shown some of the factors that govern the amplitude of the surge and have indicated, among other things, that the shock due to the rapid start of a pump may be more severe than that due to the shut-down surge. An interesting chart has been given by C. Warington Anthony in the *Engineering News-Record* for July 24, under the name of "Hexagonal Chart

for Finding Velocity of Water in Pipes." The chart takes account of those variable quantities, velocity of flow, coefficient of roughness, hydraulic mean radius, and slope, together with the powers to which these two last quantities are raised; yet, in spite of this apparent complexity, the chart is quite easy to handle.

Railroad Engineering.—The year 1919 has been fairly barren of important development in the railroad field. The four years of war have worn out railroad equipment to a tremendous extent, and the main problem has been to keep the wheels running with such equipment as was available and to add to it as fast as high prices, shortage of materials, and still greater shortage of labor permitted. Nevertheless, there have been a few things worthy of notice. Attention may be called, for example, to tests of a gondola car of reinforced concrete built for the Illinois Central Railroad. The tendency noted in previous issues of the YEAR BOOK towards increase in size of locomotives whenever possible has again been in evidence. The American Locomotive Co. has built for the Pennsylvania Lines west of Pittsburgh a 2-10-2 locomotive of a total weight greater than that of any engine of this type previously built. These locomotives are also notable for the fact that notwithstanding their great weight, they are capable of operating on 23° curves and also are equipped with pilots capable of meeting the requirements of road or yard service. Locomotives with five coupled pairs of driving wheels and a lateral-motion driving box on the front axle, such as these are, cannot ordinarily traverse curves sharper than 16°. To enable these locomotives to do so they had to be equipped with the Woodward floating axle on the front and rear drivers.

Another member of the big-locomotive family is represented by the large consolidation-type built to the order of the Railroad Administration for the Philadelphia & Reading Railroad. This type, designed for heavy track service is in many respects similar to the Mikado type but with important differences. The new locomotives have smaller driving wheels and lower boiler pressure than the Mikado,

but the cylinders are one inch larger in diameter and the starting tractive effort almost 4,000 lb. greater than in the Mikado. The locomotive is also equipped with a novel type of smoke-box, having a breaker plate placed under the superheater chamber and in front of the tubes to break up the large sparks before they strike the netting. Combined with substantial netting frames, the device has proved effective in preventing fires due to escaping sparks.

A rather interesting, though not novel, type of locomotive was developed in Germany for use by the Turkish military authorities. It is a 10-coupled three-cylinder freight locomotive designed to pull 500 metric tons on a gradient of 1:20 at a speed of 15 km. per hour. The advantage of the three-cylinder locomotive over the two- or four-cylinder type for freight service lies in the fact that the diameter of the engine is reduced and the starting is better because of the distribution of the turning force on the three-crank axle.

An important paper on feed-water heating for locomotives was published in the *Railway Mechanical Engineer* by H. S. Vincent, giving calculations for various types of feed-water heaters. The conclusion is reached that for locomotive feed-water heaters exhaust steam is superior to waste gases as a heating medium because of the low resistance of the steam film to the transmission of heat, and in a heater using exhaust steam copper tubes are preferable to steel and iron on account of their higher conductivity. Further, the economy of the heater using waste gases as a heating medium increases nearly in direct proportion to the heating surface, but such a heater occupies more space than is usually available on a locomotive. The advantages of feed-water preheating, however, may now be considered quite well established. Another significant development in connection with feed water is the growing use of water treatment where the water is poor. The Great Northern Railroad, over a strip of about 1,100 mi. east of the Rocky Mountains has developed means for chemical treatment by hydrated lime, acid ash, and sulphate of iron. Great claims have been made in the

last few years as to the possibility of using pulverized fuel in locomotives and it is of interest to note the report presented by a special committee at the 11th annual convention of the International Railway Fuel Association held in Chicago in May, 1919. It appears that a test conducted between two engines of the same class, one burning pulverized coal and the other hand fired, showed a saving of 23 per cent. in fuel burned in favor of pulverized coal. But difficulties have been encountered in slagging over of the fuel sheet and burning out of the brick arch, so that a comparison of the total cost of hand firing *versus* pulverized-coal firing on the locomotives tested showed hand firing to be more economical. Nevertheless, pulverized fuel has been found to burn in a satisfactory manner, generating all the needed steam and capable of good control. An interesting instance of what may be called cross-fertilization of sciences occurred during the year in the field of railroad engineering. It has been known for a number of years that wind resistance affects the power consumed in propelling fast trains, but no particular attention was paid to it until aeronautical practice showed how great such resistance can become. As a matter of fact, the horse power necessary to overcome front wind pressure increases with the cube not merely of the speed of the train, but also of that which is called "created wind," which in the case of express trains may easily exceed 80 miles per hour. It has been found that comparatively slight modifications in the design of the locomotive create a quite material difference, as high as 24 h.p. when the velocity of the created wind is 80 miles per hour, and it is already certain that savings as high as 60 h.p. for the same speed of created wind are possible.

In relation to the efforts towards standardization of railroad equipment in the United States the British view of this matter becomes of interest. It is expressed in a report made by the Advisory Council of the Ministry of Reconstruction, based on an extensive investigation of the council and memoranda submitted by the British Engineering Standards Association and the Locomotive Manufacturers' Associa-

tion. The report recognizes the advantages of standardization of railway equipment in such countries as India but claims that conditions in Great Britain are not suitable to its adoption because of the differences in structural and clearing gauges and in tunnel dimensions. At the same time, the report points out the existence on British railways of quite unnecessary multiplication of types of certain equipment. For example, the evidence before the Council showed that in the one item of axle boxes there are 200 different types. Standardization is strongly recommended, however, for the export trade, and it is even proposed to attempt a partial international standardization by bringing together consulting engineers and representatives of railways overseas financed by British capital. A movement is thus started which may become of great interest to manufacturers of railway equipment in this country as well as in Europe.

Refrigeration.—An interesting question has been raised in an article by John E. Starr, in the *Refrigerating World* for July, 1919, as to just how much we know about the thermal properties of carbon dioxide. The author shows that the available tables give rather conflicting information, which, if followed, might lead to a possible difference between the necessary and designed size of a machine as high as 66½ per cent. Suggestion is made that the Bureau of Standards should take up the matter and prepare reliable tables giving the properties of carbon dioxide under various thermodynamic conditions.

As a minor improvement in refrigerating machinery may be noted the design of copper condensers in the ice plant of the Colorado Ice and Coal Storage Co. of Denver. It is claimed that copper condensers not only give better heat conduction than iron, but also that they are practically self-cleaning.

Wind Motors.—The shortage and high cost of fuel all over the world has led to increased attention to wind motors, especially in countries that were particularly badly off for coal and man power. In Denmark many hundreds of them have been installed, and it appears their employment will

be permanent for some time to come. Wind-velocity observations at Lindenberg Observatory have shown that the mean wind velocity varies from 4.7 m. per second in low-lying districts to 9.4 m. per second at an elevation of 1,500 m. above sea level, and already at seven metres per second wind velocity a wheel 12 m. in diameter develops 14 h.p. A German concern has placed on the market a wind motor connected to a dynamo, the latter being driven by means of gearing; auxiliary wind wheels serve to rotate the main wheel according to the wind's direction and to adjust it to the wind intensity. It is stated that the cost of operation of the motor is from four to seven pfennigs per horse-power-hour, including interest, amortization, and attendance charges.

Important progress has been made in the design of wind motors to drive wireless-telegraph and -telephone generators on airplanes. The problem of design of these motors was by no means an easy one, as the motor must be very small and light, offer a minimum of head resistance and, what was especially difficult, run at a practically constant speed with extremely close limits of variation notwithstanding changes in the velocity of the wind, angle of attack, and speed of plane. That the problem has been solved successfully for the American Air Service shows the very high stage of development of knowledge of air machinery.

Machine Tools.—The intensive production of military equipment in immense quantities at a time of great shortage of labor naturally led during the war to the development of numberless new machine tools; the two following are mentioned not because they represent the highest expression of this movement, but simply as an illustration of the general tendency in this field of engineering. Several precision screw-cutting lathes have been developed for the single purpose of cutting the thread on a screw gauge. Before the war not enough gauges were made to keep a single machine of this kind busy, but when shells were ordered by the million and cartridges by the billion and other equipment on a similar scale, a tremendous demand was created for

gauges of all kinds. This machine was designed to make it possible to cut a perfect screw on a gauge or to do similar high-precision work with unskilled labor.

Another machine developed in America turns engine crankshafts. It is a tremendous piece of machinery capable of machining crankshafts of from seven to 10 in. diameter and any throw. The main bed is 33 ft. 10 in. long and 50 in. wide. When in action on a four-throw crankshaft, for example, the machine closely resembles a huge four-cylinder engine. One of the great advantages claimed for this method of machining is that all the webs and crankpins are machined at once and all tendency to distortion is thereby eliminated. The size of the machine may be imagined from its weight of approximately 95 tons, and its ability from the fact that it takes only two days to machine a crankshaft that would take 30 days to turn in the ordinary way.

Foundry Practice.—Several new foundry processes have been developed. A process has been announced for forming castings of non-ferrous alloys which consists in pouring the molten alloy into metal molds and forming or congealing the castings under pressure. The castings are made in a specially constructed automatic machine by which several hundred per hour are turned out. In this process has been used an alloy consisting of aluminium, copper and iron with a low coefficient of expansion (see also *Materials of Construction, infra*). Introduction of iron makes it possible to produce very large aluminium pistons for high-power aircraft engines without running into the usual difficulties caused by the high coefficients of expansion of aluminium. The Davidson process for casting form tools has been announced, though some of the details are not yet given; for example, it is not stated what material is used for "killing" the steel. It appears, however, that by this process milling cutters can be produced which to finish need only be ground. A problem is thus solved that has occupied the attention of foundrymen for a good many years.

Announcements have been made of the discovery of a new moulding mate-

rial, a combination of amphibole and actinolite. These minerals belong to the same family as asbestos with additional magnesia and other elements of a refractory nature, and it is claimed that with a proper binder,

which is said to have been perfected, it is possible to use these materials for permanent moulds. The reliability of this announcement, however, has been put in doubt by some accompanying circumstances.

AUTOMOBILES

J. EDWARD SCHIPPER

The Automobile Industry.—The year 1919 was the most unusual in the history of the automobile industry. When the War Industries Board toward the latter part of 1918 issued the order that the automobile industry must be on a 100 per cent. war basis by Jan. 1, 1919, it set in motion a train of events which materially affected the engineering, production, and financial departments of automobile manufacture. Factories immediately started working toward the 100 per cent. war basis, and by Jan. 1 the industry would have been turned completely from a peace industry to one of the most effective of the war industries. When the armistice came in November, 1918, all factories immediately joined in a race to get back to regular peace-time production. For those who had secured war contracts that were very closely allied with their regular production lines the task was more or less simple, but for those that had taken contracts for materials and supplies in fields far different from their usual commercial production the task was tremendous. In many instances factories had been entirely overhauled and retooled, and new buildings had been erected and fitted for the manufacture of new products. Hence, Jan. 1, 1919, found the automobile industry in a more or less hasty scramble to get its factories back on a peace-time production basis and to bring its products up to date from the standpoint of engineering and design.

For those whose production in war time did not differ materially from peace-time production, naturally the simplest thing to do was immediately to resume the building of the models that had been produced before the armistice, and consequently the early part of 1919 saw the continuance, with only minor improvements, of many of the models that were manufactured

in pre-armistice days. Those who had entirely to revamp their factories to get back to normal production generally started to design new products, so that they were really preparing to start with a clean slate, new plants, and new, modernized automobiles. With this situation existing the early part of 1919 did not produce anything new or radical in design. Toward the end of the year, however, newer models which included the knowledge gained during war time began to appear, and the so-called 1920 products produced during the latter part of 1919 showed many improvements, making them better in performance and of higher quality than ever before. Probably the most notable improvement in automobile manufacture is the higher grade of workmanship employed. Working to closer limits on airplane-engine work taught the automobile manufacturer higher ideals in workmanship than ever before. This, with the increased cost of labor and materials, has been the cause of marked price increases, averaging 50 per cent. throughout the entire field.

Automobile Design.—For once in the history of American automobile manufacture very little designing to a price is being done. The car is being designed and the price fixed afterwards. This arises from a marked desire on the part of the sales and engineering departments for higher quality and also to a market never before equaled, due to a demand which will probably require two years to equalize. Practically every concern in the business is bringing out a higher-class car than it ever manufactured before.

From the standpoint of design, the most marked advance of the year has been in the power output secured per unit of displacement per engine. This is largely due to the advanced use of the overhead-valve type of engine, with the camshaft in the crankcase

and the valves actuated by rocker arms. A great many concerns have adopted this type of engine where they previously made L-head or T-head types. The overhead-valve engine, with its combustion chamber shaped more closely to the ideal than is possible with the L-head, gives a higher mean effective pressure and consequently better torque and horse-power output at all engine speeds.

The greatest problems before automobile engineers today relates to fuel. All of those who have made a study of the situation point out that the present fuel supply will not last beyond a few more years in relative quantities sufficient to maintain the present price. To meet the situation created by the decreasing supply of gasoline, the lower-gravity petroleum constituents, which are much less volatile, are being employed, and means for efficiently handling this fuel have been very carefully studied. Cold starting and crankcase dilution due to leakage of fuel past the pistons are intimately connected. New piston types designed to remedy this fuel-leakage difficulty have been examined with favor. In some of these there are two elements, one acting as simply a guide, and the other as a seal for the combustion chamber. Some of these pistons were used in the British tanks with great success.

The process of making reciprocating parts of engines lighter, which had been thought to have reached its limit, is still going on. Recently a manufacturer of medium-sized fours cut 10 oz. from each piston by eliminating the wrist-pin bushing, letting the pin bear directly on the cast-iron boss. The replacement requirement in such practice lies simply in providing over-size piston pins. The aluminium piston is again coming into favor, and manufacturers who declared themselves against the aluminium piston are again being attracted by the lure of lightness and high conductivity. The aluminium-alloy pistons in the Liberty engine performed very creditably on the whole, and this has given rise to renewed interest.

Detachable engine heads have come to stay, but improvements in the method of attachment will have to be made in some instances so that the

tightening of the head studs will not distort the valve seats. Hot-spot and other types of heated intake manifolds were used with success during 1919 and probably will be continued. On the other hand, there are some cars that have proved to be over hot-spotted, with a consequent reduction of power due to expanded fuel gases.

Another mechanical advance made during 1919 is the use of the high-pressure oiling system, which has not only helped to solve the problem of the overhead valve, but is also giving it longer bearing life through the marked cooling effect of the lubricant. Predictions have been made during the year that air cooling will again come in for marked attention because of the tendency toward small-bore engines which are readily air-cooled.

Clutch design did not change materially during 1919 except for very minor improvements and possibly a little alteration in materials. In some cases where cone clutches are used, the pressed-steel cone has been replaced by the more rigid aluminium casting for the cone member. Improvements in the art of gear cutting during the year have produced more silent transmissions. There has been some discussion of again trying the four-speed gearbox in coming models, but it is doubtful if this will be adopted to any extent. During the year two or three old manufacturers have come out with transmission brakes on their new models. This is not a surprise in engineering circles, where such a practice has been recommended for a long time.

Automobile Bodies.—There were a great many designs in progress during the year that will not be seen until 1920. Many of them include extreme light weight as one of the main features. The successful use of plywood in airplane manufacture has suggested that it could be used with success in building light automobile bodies, these bodies not only acting as such, but also serving as part of the automobile structure and doing away with the heavy chassis-frame construction. One engineer has suggested that a successful car could be made along these lines to weigh not more than 900 lb. This is no doubt radical, but it shows the trend of engineering thought.

AERONAUTICS

ALEXANDER KLEMIN

Government Services.—On the termination of the war no change took place in the organization of the various aviation activities of the Navy Department except in the rapid reduction of personnel and in the cessation of large production. In the War Department the Bureau of Aircraft Production passed out of existence, the small volume of its remaining work being taken over by the Engineering and Supplies Divisions of the Air Service. An aviation mission to Europe returned on July 20 after an extensive study of European air establishments. Its report strongly recommended the fusion of the Army and Navy Air Services into a single National Air Force and the creation of an Air Department ranking in importance with the Departments of War, the Navy, and Commerce. The proposed Department would be charged with full responsibility for "placing and maintaining our country in the front rank among nations in the development and utilization of aircraft in the national security, and in the advancement of civil aerial transportation and communication arts." The proposed creation of a single Air Force became the subject of considerable controversy and was strongly opposed by both the Secretary of the Navy and the Secretary of War. A number of bills creating such an independent Air Service are under consideration by Congressional committees. (See also XI, *The Army*; and *The Navy*.)

Military Aeronautics.—With the lifting of the censorship it is now possible to review somewhat more fully the solid technical achievements of the Army Bureau of Aircraft Production during the war, a number of which have received due notice and credit since the armistice. The experimental engineering work of the Bureau was concentrated at McCook Field, Dayton, Ohio. Here a system of sand testing, a sure method of investigating the structural strength of airplanes, was developed and all new planes were submitted to such tests. By careful coördination of the theoretical stress analysis and results of

tests many corrections were introduced into such analyses. Full-flight testing was also put on a scientific basis for the first time in the United States.

An enormous amount of work was done in the study of the application of new materials to airplane construction. Veneer was the subject of a particularly exhaustive study, and a very fine construction of veneer fuselage was finally evolved. It was found that veneer fuselages could be made lighter for the same strength than the ordinary rectangular-truss fuselage and that they also lent themselves better to streamlining. Considerable attention also was given to the development of steel construction. For wing spars it was found that by using heat-treated alloy steels greater strength could be obtained for the same weight than with wooden beams. Steel control surfaces were developed which have already been classified as standard construction. The outlook is very promising for the future of steel airplane construction.

Besides experimental construction throughout the country, McCook Field was responsible for the successful adaptation of a number of foreign machines to the Liberty Motor, the D9A in particular turning out to be a reconnaissance and day bomber of splendid performance. The Lepère C-11, also built under the auspices of the Field, was at the end of the war perhaps the best combat plane possessed by either the Allies or the Germans.

During 1919 one of the most interesting developments was the construction of a wind tunnel operated by a 24-blade suction fan with a minimum diameter of nine inches, in which a speed of over 300 miles an hour is attainable. At this velocity it is hoped to obtain more reliable data on propeller-blade elements. Because of the precipitation of the humidity in the air stream at this velocity it is possible for the first time to observe vortex flow, a beautiful and fascinating phenomenon.

Naval Aeronautics.—During the war the Navy maintained a wholly

justifiable secrecy regarding its aeronautical activities. It was only several months after the signing of the armistice that any information of a comprehensive character was issued to the public. It is legitimate, therefore, to deal here with this important work, even though the bulk of it was carried out before the year 1919. The Navy in aircraft, as in ships, does the greater part of its own designing and building through its corps of naval constructors. At the same time there is very close coöperation with builders under the engineering control of the Navy Department. The Bureau of Construction and Repair, while keeping in close touch with foreign practice and doing liberal adaptation work from the best designs available, also carried out development work along original lines. Its solid achievements in this field are greatly to the credit of the Bureau.

When the United States entered the war, the problem confronting the Navy was largely determined by the fact that the operations of the German and Austrian fleets had been reduced principally to minor raids from the fleet bases at Kiel and Pola, and the only real sea-going operations lay in the activity of submarines. The work of the seaplanes, therefore, was primarily reduced to that of coöperation with the fleet in defeating the submarine menace. The Navy, instead of attempting to develop land-plane types, adopted well tried military machines for shore service at its seaplane bases abroad lest new development work interfere with production.

For training purposes the Navy at first developed and used seaplanes such as the Curtiss R-6, the Aeromarine, and Boeing seaplanes and also experimented with a number of miscellaneous types, such as the Gnome Scout equipped with rotary Gnome engines. The most successful was the Curtiss N9. It was very soon determined, however, that for rough work at sea, the flying-boat type was far superior in service, and training was chiefly provided in the Curtiss-F type flying boat.

For actual war work flying boats were used exclusively. These were all equipped with Liberty Motors. The two types most largely employed were

the single-engined HS-2-L and the twin-engined H-16. Although these two types are different in size, engine power, and fuel capacity, they both had the same general characteristics. The boat hulls have easy flaring bows, so that they can be driven through a seaway to get up the speed necessary to take the air, and a strong V-bottom to cushion the shock of landing on the water. The engine or engines are carried high up between the wings. The pilot and assistant pilot are seated in a cockpit just forward of the wings, from which point they have a good view for the operation of the plane. A radio outfit is provided just forward of the pilot. A gunner's cockpit is fitted in the bow which is provided with a gun ring and a Lewis gun. The gunner has a very good range of fire, particularly ahead and down and on either beam, and also upward and to the rear of the plane. In the gunner's cockpit are also fitted the bomb pulls and the sight for dropping the bombs, which are located under the wings just clear of the hulls. In the larger H-16 a wireless operator was carried back of the pilots; in rear of the wings also an additional gun ring provided protection in a rearward direction.

The HS-2-L and the H-16 carried useful loads of 2,130 lb. and 3,500 lb., respectively, were well equipped and well armed, and had good bombing facilities and a fair range of action. Once across the Atlantic, they did excellent service in patrolling the submarine-infested areas. But a difficulty lay in the fact that the submarine peril actually made it hazardous to transport the seaplanes to the field of action. In Admiral Taylor's opinion the only solution lay in increasing the size of flying boats until they could fly across the Atlantic and so overcome hazards of delivery. Accordingly he gave instructions to Commanders J. C. Hunsaker and G. C. Westervelt to undertake the design of a type meeting these requirements, which resulted in the famous "NC (Navy Curtiss)" boats.

The design was carried out in its main elements by the Bureau of Construction and Repair, the Curtiss Engineering Corporation being responsible for both detail, design and con-

struction. Much careful investigation of a technical character, wind-tunnel experiments, and the most careful design finally resulted in the production of a unique type of flying boat; the largest of its time. When fully loaded these boats weigh in the neighborhood of 28,000 lb., with a useful load, or load available for carrying crew supplies, fuel, armament, etc., of about 12,000 lb. For an endurance flight there would be a crew of five men, radio and radiotelephone equipment, food and water, signal lights, spare parts and miscellaneous equipment, with 750 lb. of oil and 9,650 lb. gasoline, sufficient for a flight of 1,400 sea miles. The radio outfit is of sufficient power to communicate while in the air with ships 200 miles away.

The NC-4 which finally made the famous trip across the Atlantic was fitted with four high-compression Liberty engines mounted between the wings, one on either side of the hull and two in the center in tandem. The hull is an enormous boat-like structure 45 ft. long and 10 ft. beam. The wings have a maximum span of 126 ft. The tail in the type NC-4 is unique. The tail surfaces, over 500 sq. ft. in area, are carried by hollow spruce booms, the flying-boat hull being comparatively short and not supporting the tail surfaces but supporting merely one of the booms carrying these tail surfaces. It was in command of this unique craft that Lieut.-Commander A. C. Read made the famous crossing at Plymouth on May 31, after covering a distance of 4,514 miles. The actual crossing of the Atlantic was on May 16, from Trepassey, Newfoundland, to Horta, Fayal, a distance of 1,200 knots; it was made in 15 hr. 18 min., at a speed of 78.4 knots an hour (see also XI, *The Navy*). This crossing of the Atlantic was a proud record for the Navy from the point of view of engineering and navigation. Its record from a production standpoint was equally satisfactory. The Philadelphia Naval Aircraft Factory about a month and a half before the signing of the armistice covered a floor space of 750,000 sq. ft. and had up to that time produced an output worth nearly \$4,000,000. At the peak of production the factory had 12,000 men on its payroll, and the pay-

roll for the month of September, 1918, was \$405,000.

Airplane Design.—A number of extremely interesting developments in airplane design, though perhaps dating back a year or two, have only recently been made public. Several very large machines deserve mention in a group. The Zeppelin company in Germany has developed a five-engine plane with 260 h.p. Maybach engines. Two engines in tandem are placed on either side of a wing nacelle driving a single propeller; the fifth engine is mounted in the nose of the fuselage. A Linke-Hoffman airplane carries four engines in one central fuselage driving one tractor screw with a complicated but well designed system of gears and clutches. It indicates a very interesting tendency in German practice that experiments in the gearing of motors are not shirked. Gearing for airplane engines minimizes the possibilities of breakdown and avoids the parasite resistance entailed in placing engines out on the wings. Considerable attention is now being paid to this problem in the United States. Of bids submitted to the Aerial Mail Service a number covered geared-engine designs.

In England the biggest machine ever constructed was recently wrecked, which, however, does not invalidate its possibilities. This was the Tarrant "Tabor" with six Napier Lion 500 h.p. engines. Besides demonstrating the actual possibility of flying an airplane of a total gross weight of 45,000 lb., a wing area of 4,950 sq. ft., and a span of 131 ft., the machine stands as an object lesson of the structural refinement it is possible to introduce in the very large machine. The spars are no longer solid pieces of spruce, more or less routed and refined, but are carefully built-up members with flanges built up in three laminations and webs in Warren-girder form fitting into grooves in the flanges, the whole spar offering a distinct resemblance to bridge construction. The giant monocoque body permits the mechanic to walk about freely in its interior. The instrument dashboard is like the instrument board of an electric power station.

An interesting point in many of these large machines is the placing of

engines and propellers in tandem, with the rear propeller working in the slip stream of the front propeller. This offers a ready solution of the problem of engine position and English experiments have demonstrated that the loss in efficiency of the rear propeller is not over 10 per cent. The Tarrant engine had four of its six engines in rear of the other. The Handley-Page and Bristol Braemar planes, equipped with four Liberty engines, also have the engines mounted in tandem wing units. The latter is a tri-plane.

The Super Handley-Page is inferior in size only to the Tarrant, with a gross load of 30,000 lb. and a disposable load of 7,000 lb. Although this giant machine cannot compete in speed with the small military machines, it still achieves the very respectable speed of 105 miles an hour.

It is worthy of note that although American builders have not produced hitherto any "giant" machine, they are quite on a level with foreign constructors as regards other types. The Glenn Martin bomber is an excellent example of American construction of standard design; although equal or superior to any similar foreign machine, it does not show any radically new features. In the field of small high-speed machines, on the other hand, the Curtiss "Wasp" triplane presents a great many technical refinements. Its design embodies nothing of a very revolutionary character; at the same time, while carrying a useful load of over 1,050 lb. and with an engine of 400 h.p., this machine has attained a speed of close to 160 miles an hour. In its latest design are embodied most of the refinements characteristic of the very latest practice. The radiator is of tubular free-air construction, carried on the sides of the fuselage. Tests in the tunnel and experience in the fields have now demonstrated that free-air radiators are probably more efficient than those placed in the nose of the fuselage or in the wings. A veneer body is embodied in the design, of perfect streamline form, only possible with this type of construction. Hinges to control surfaces have been so contrived as to give the smallest possible gap, with a minimum of aerodynamic disturbance. All fittings are so designed as to be

completely enclosed whether in the wings or in the fuselage. In general, airplane design, as illustrated by this very excellent example, does not seem to be taking any radical steps forward, but to be advancing slowly by a process of refinement while forms and principles remain unchanged.

Airplane Engines.—At the termination of the war the outstanding high-powered engines successfully built and flown in the United States were the Liberty Motor and the Hispano-Suiza. A number of excellent motors had not received much development because of necessities of standardization and production, and because of the vast number of war motors available, the construction of new types perhaps more suitable for commercial work has not been as rapid as might have been expected. An interesting three-cylinder, star-shaped, stationary, air-cooled motor, the Lawrence 60 h.p., has been successfully developed. One or two four-cylinder motors have been built and used with indifferent success. The Curtiss company has built a 12-cylinder V-type engine which surpasses the Liberty but still has to demonstrate in actual use its endurance qualities.

The outstanding problem for the airplane engine at the moment does not seem so much a question of improvement in weight per horse power or in efficiency as in durability, accessibility, simplicity, and, above all, cheapness. The claim of airplane builders now is that the engine is so expensive as to preclude the possibility of building a commercial airplane at a generally accessible price.

Perhaps the most important recent step realized in airplane-engine work is the construction of the turbo-compressor, designed to maintain the power of the engine at altitudes, which was built by Sanford A. Moss of the General Electric Co., in close co-operation with the Army Air Service. One of the most important problems in military aeronautics lay in constantly increasing the possible ceiling of the airplane and in maintaining its performance at altitudes. To ensure this, in the face of the fact that with increasing altitude and decreasing density and pressure the power of the engine falls off rapidly, is a matter

of extreme difficulty. To overcome this difficulty, engineers have turned to the idea of compressing the air delivered to the carburetor so as to maintain pressure and density as nearly as possible equal to that on the ground. If the war had lasted longer, there is no doubt that military airplanes would all have been equipped with some form of supercharger. In Europe serious attention was given to the problem as early as 1915, and the British, French, and Italians each carried on independent experimental work. The principle of turbo-compression, first suggested by Rateau in France, has given the most fruitful results. In the supercharger developed by Dr. Moss the exhaust gases drive a turbine at a terrific speed, and keyed to the same shaft is an air compressor which supplies compressed air to the carburetor. In an airplane in which the power at altitude is maintained, the possible speed increases greatly because of the reduced density and resistance to the air. A test with the turbo-compressor installed on a Lepère combat plane rendered possible a speed of 139 miles per hour at an altitude of 18,000 ft., demonstrating the enormous practical value of the device.

In the course of 1919 more or less detailed reports received from England show that radial air-cooled engines are constantly gaining favor. A nine-cylinder A.B.C. engine developed 340 h.p. with a weight complete of 600 lb., or $1\frac{1}{4}$ lb. per horse power. As the air-cooled engine carries neither water nor radiator, this shows remarkable progress over the water-cooled type. A Cosmos "Jupiter" engine, also a nine-cylinder stationary air-cooled type, gave 450 h.p. for a weight of 662 lb., an extraordinary figure.

Commercial Applications.—The year 1919 has seen the beginning of commercial utilization of the airplane on quite a large scale. In the United States there has been a strong movement for the establishment of municipal landing fields all over the country (see also VI, *Municipal Government*.) Small passenger-carrying companies have sprung up all over the country. Exhibition flights have proved interesting and remunerative, and a num-

ber of transportation services are being planned.

The Aerial Mail Service has continued most successfully. For the month of June, 1919, a record of 99 per cent. perfect flights was made between Washington and New York, covering a mileage of 11,118 miles and carrying 15,643 lb. of mail. On the Cleveland-Chicago division for the same month a perfect score of 100 per cent. was obtained. The operation of the Cleveland-Chicago route is without a parallel in the history of aviation. For the first 70 consecutive days of its operation daily non-stop flights were made without a forced landing. In other months the Aerial Mail Service has shown similar efficiency, and it is claimed that the cost of air transportation of mail actually realizes an economy for the Post Office Department. The first air delivery of late mail to outgoing ocean liners was ingeniously accomplished on Aug. 14, when an aeromarine flying boat dropped a pouch on the White Star liner *Adriatic*. The feat was successful, despite adverse weather conditions and a heavy sea an hour and a half after the *Adriatic* left port. (See also XIX, *The Post Office*.)

In Europe the Farman Company has inaugurated a regular passenger service between Paris and Brussels, and daily express and passenger lines are being successfully run between London and Paris by several British and French firms. In France a very comprehensive system of airways and aerial ports is being developed under state auspices, and the state is also planning to support commercial air services by a system of premiums apportioned according to the importance of the service rendered. In England, although the question of State subsidy has not yet been solved, the commercial utilization of the airplane is proceeding at a rapid rate, owing to the spirit of enterprise displayed by the more prominent aircraft firms.

Records and Races.—With the immense progress achieved during the war and energy released from the strain of war, 1919 has seen a number of remarkable airplane records, of which only a few can be mentioned here (see also XXXI, *Chronology*). The crowning achievements were the

first flights across the Atlantic, in which the U. S. naval seaplane NC-4 was the pioneer (see *supra*). The first attempt at a trans-Atlantic flight in a land plane for a prize of \$50,000 offered by the London *Daily Mail* was made by Harry G. Hawker and Lieut.-Commander MacKenzie Grieve of the British Navy, flying a Sopwith biplane. They left St. John's, Newfoundland, on May 18, but their engine failed after a flight of 1,050 miles. The aviators were picked up on the 19th by the Danish steamer *Mary*, and the plane also was salvaged. A successful attempt was made a month later by two other Britons, Capt. John Alcock and Arthur W. Brown, flying a Vickers-Vimy bomber. They left St. John's on June 14 and landed in Ireland on the following day, covering the 1,900 miles in 16 hr. 12 min.

The use of oxygen tanks to maintain proper breathing conditions for the pilot and heated clothing have made possible ever increasing altitudes. On Sept. 18, 1918, Major R. W. Schroeder, U. S. A., broke the world's previous record by attaining an altitude of 28,900 ft. in a Bristol biplane fitted with a Hispano-Suiza engine. On July 30, 1919, Roland Rohlfs, test pilot for the Curtiss Engineering Corporation, flying a Curtiss "Wasp" triplane with a 400-h.p. Curtis motor, reached an altitude of 30,700 ft. On Sept. 18 the same pilot flying the same machine attained the extraordinary altitude of 34,500 ft. This surpassed the 33,136 ft. attained by Lieutenant Casale of the French Air Force at Villacoublay, France, and stands as the present official world's record.

Although many American constructors during the year claimed to have built the fastest machine in the world, no very definite records have been established in this matter of speed. American-built machines compare most favorably with foreign-built craft in this respect. Thus, the Loening monoplane equipped with a 300-h.p. Hispano achieved a speed of 143 miles an hour; the same machine, but fitted with pontoons, established on Sept. 29 a world's altitude record for seaplanes by reaching 18,500 ft.

From Aug. 25 to Aug. 29, 1919, a speed and handicap race was held between New York and Toronto under

the auspices of the American Flying Club. This was the first time in the history of aviation that a handicap race was attempted, in which the standing of each airplane was worked out by application of a formula determining the ratio of the actual performance of the plane to its ideal performance. Out of 52 civilian and military pilots who took part in the race, 32 pilots completed it. As a demonstration of the reliability now attained by the airplane in skilful flight, it is worthy of note that the winner of the handicap race, Major R. W. Schroeder in a VE-7 achieved a percentage of 107.8, while the contestant occupying the seventeenth place attained as high a figure as 70 per cent. this in spite of persistently bad weather, fog, rain, and storms. No serious accidents occurred. This race probably marks a new era in aeronautical competitions.

Dirigible Balloons.—The year saw a remarkable revival of interest in lighter-than-air craft, which had been somewhat discredited by their failure to play any vital part in the war, due to a number of sensational achievements. The British naval airship R-34, which flew from East Fortune Air Station, Scotland, to Roosevelt Field, Long Island, in 4 days, 12 hr., 12 min., successfully completed her round trip across the Atlantic on July 13, when she reached Pulham Air Station, Norfolk, England, after a flight of 3 days, 3 hr., 3 min. The eastward passage was made at an average altitude of 3,000 ft. and with favoring winds practically all the way across, which at times increased the speed to 74 miles per hour.

The general characteristics of the R-34, a dirigible of rigid construction in duraluminium, are similar to those of the German Zeppelins. It has a capacity of 2,000,000 cu. ft., an overall length of 650 ft., a total gross lift of 68 tons, and a total horsepower of 1,375. Even more gigantic lighter-than-air craft have been built by British and German constructors, and it is confidently expected that ultimately capacities of 10,000,000 cu. ft. will be reached. Vickers, Ltd., of England, who have built many of these ships for the British Admiralty, have formulated a comprehensive plan for

the establishment of a service between London and New York and London, Lisbon, and Rio de Janeiro. The possibility of carrying large numbers of passengers in safety and comfort and the large freight capacity of these enormous airships make their scheme appear practicable.

One of the dangers of dirigible operation is the possibility of hydrogen explosions. Much interest has therefore been aroused by the production on a commercial scale of helium, which, although slightly heavier than hydrogen and more costly, offers the great advantage of non-inflammability. Helium was obtained during the war from natural sources in Texas. The Linde Air Products Co. in coöperation with Government bureaus and under contract with the Government made the production of helium a commercial process.

In the lighter-than-air field the main effort of the Navy Department during the war was directed towards constructing small non-rigid airships for coast and submarine patrol. Sixteen of the "Blimp" type of airship of 84,000 cu. ft. capacity were built during the war. These were not very remarkable for performance but enabled the Navy to train some 150 pilots and to do about 4,000 hours of patrolling covering 140,000 miles. Larger airships fitted with twin engines have since been built for naval use, and these vessels have a very creditable performance, their full speed being in the neighborhood of 60 miles per hour. One of these ships, the C-5, made on May 14-15 a non-stop flight of over 1,100 miles from Montauk Point, Long Island, to St. John's, Newfoundland, which it accomplished in 25 hr., 40 min. Unfortunately, on landing the airship was torn from her moorings by a storm and thus lost at sea; its performance was nevertheless very remarkable for a vessel of such small size. The C-class airships of the Navy are 192 ft. long, 41 ft. 3 in. in diameter, and have a volume of 178,000 cu. ft. They are fitted with two Union Gas Engine Co. engines of 125 h.p.

Bibliography.—Although with the conclusion of the armistice the censorship covering aeronautical activi-

ties was lifted to a considerable extent, the great wealth of material accumulated during the war has been only very slowly released to the public. Among other important Government publications, the technical report of the British Advisory Committee on Aeronautics for 1913-14 was finally released for general circulation. This contains a mine of valuable information, for the most part based on careful experimentation in the wind tunnels of the National Physical Laboratory (England). Several preprints from the Fourth Annual Report of the National Advisory Committee on Aeronautics have been issued, the most important being the "General Theory of Blade Screws" by G. De Bothezat, which is a very complete statement of the various working conditions of the blade screw. Other preprints deal with "Fabric Fastenings," "Airplane Dopes and Doping," "Testing of Balloon Fabrics," "Aluminium and its Light Alloys," and "Self-Luminous Materials."

In the technical magazines many valuable articles have appeared. In *Aviation and Aeronautical Engineering* the "Course in Aerodynamics and Airplane Design" was continued in Part III, dealing with "Experimental Aeronautical Engineering" and describing standard methods for sand testing, full-flight testing, and wind-tunnel testing. In the same publication Co. V. E. Clark, U. S. A., has published a set of curves for predicting the performance of an airplane which is of great practical value for quick computations, J. G. Coffin has dealt in an interesting article on "Altitude Errors in Aerial Navigation" with a new form of barograph developed for their avoidance.

In the field of seaplane work, "Airplane and Seaplane Engineering" by Commander H. C. Richardson and "Progress in Naval Aircraft" by Commander J. C. Hunsaker, both papers read before the Society of Aeronautical Engineers, constitute the most important contributions. These deal thoroughly with the development and design of the large Navy flying boats.

In airship work a number of articles by E. H. Lewitt in the *London Aeronautics* develop some intricate points in the stress analysis of rigid dirig-

ibles. "Airship Engineering Progress in the United States" by Commander J. C. Hunsaker is a very authoritative statement of practical progress in the art (*Aviation and Aeronautical Engineering*). A paper before the Royal Aeronautical Society by Lt.-Col. T. R. Cave-Browne-Cave on "Lighter-than-Air Craft" furnishes almost a concise textbook on the subject.

A very important paper on "Metal Construction of Aircraft" read by A. P. Thurston before the Royal Aeronautical Society describes the very important and extensive work carried out in England. Both steel and duraluminium were investigated and very promising results obtained. The time seems to be approaching when both steel and duraluminium will be utilized in airplane work. Capt. W. S. Farren in a paper on "Full-Scale Aeroplane Experiments" before the Aeronautical Society describes fully all the ingenious methods employed in the testing of airplanes and the possibilities of aerodynamical research on the airplane itself.

No really important textbooks have appeared during the year. Among those of technical character may be included *Aeroplane Construction and Operation* by John B. Rathbun, the greatest merit of which lies in the fact that it constitutes a sufficiently complete reference work of handy size

on customary airplane construction. *A Textbook of Aeronautics* by Herman Shaw covers the entire field of aeronautics in a somewhat sketchy manner. *The Properties of Aerofoils and Aerodynamic Bodies* by Arthur W. Judge is frankly a compilation of aerodynamic data from the reports of the British National Physical Laboratory. *Airplane Design and Construction* by Ottorino Pomilio covers a wide range and is well and accurately written. *Practical Aviation, including Construction and Operation* by Major J. Andrew White is a complete text of military aviation, treating such subjects as aerobatics, night flying, aerial gunnery, combat, reconnaissance, and gun spotting. *The ABC of Aviation* by Capt. Victor W. Page is an elementary but well written book. *Aeroplane Construction and Assembly* by J. T. King and N. W. Leslie is an authoritative book on rigging and other duties of an airplane mechanic. *Aeronautics* by Capt. H. Barber, a flying instructor of many years' experience, is the most interesting and authoritative book of its kind ever published and visualizes in print and picture various flying maneuvers in an extraordinarily effective manner. *Automobile and Aero Engines*, translated from the French of René Devil- lers, deals very soundly with the theory of the aircraft engine.

NAVAL ARCHITECTURE AND MARINE ENGINEERING

DANIEL H. COX

General Conditions.—During 1919 shipbuilding in the United States was primarily a matter of readjustment from a war to a peace basis. As was stated in the 1918 issue of the *YEAR BOOK* (p. 607), immediately after the termination of hostilities in November, 1918, the Government programme of shipbuilding was thoroughly analyzed, and such steps were taken as seemed advisable in order to protect the Government's investment in shipbuilding and shipping. During 1919, this process was continued; strong efforts have been made to reduce extravagant costs in vessel construction, to improve the quality of vessels being built, and to discontinue the construction of vessels of types not considered necessary.

During the first half of 1919 practically no private buyers for new ships came into the market, the shipyard facilities during that period being practically entirely occupied in the construction of Government vessels and in adjusting themselves to new conditions. During the last six months of 1919, however, private capital has to some extent invested in new construction, orders for a number of vessels of various types having been placed; and it has, in addition, absorbed a certain amount of tonnage already constructed by, or under construction for, the Government. As a result of the decrease in the Government's activities and the lack of new orders, many of the shipyards, notably those engaged in wooden-ship con-

struction, but including also some of those engaged in steel construction, have already been closed down or are likely to be closed down in the near future. The shipbuilding facilities of the country are undoubtedly in excess of the immediate requirements, especially with respect to yards only qualified to build vessels of the smaller sizes.

Expansion of Shipbuilding Facilities.—It is well to put on record certain of the remarkable achievements in shipbuilding that resulted from the intensive programme conducted under direction of the Government during the war period. In this connection the following extract from the report of the Director-General of the Emergency Fleet Corporation, submitted on April 30, 1919, may be quoted:

The following records indicate the great success which has attended the project of building certain new yards for merchant work:

The Skinner & Eddy Corporation, whose shipbuilding work dates practically from the outbreak of the European War, has delivered to the Emergency Fleet Corporation 36 cargo vessels with a total capacity of 320,200 dead-weight tons.

The work of the Great Lakes district expanded so that during 1918 vessels to the capacity of 558,000 dead-weight tons were delivered. This production shows the degree of expansion best when compared with the greatest recent annual pre-war output of the entire country, which was about 488,000 dead-weight tons in 1916.

The Los Angeles Shipbuilding & Dry Dock Co., whose six-way plant was not started until May, 1917, has delivered 11 ships of 8,800 dead-weight tons, 96,800 dead-weight tons in all, and has six ships being fitted out in the wet basins.

The Southwestern Shipbuilding Co. launched an 8,800 dead-weight ton vessel 115 days after the six-way plant was commenced. This yard now produces the equivalent of one 8,800-ton vessel every 20 days. The contract for the building of the yard was signed in March, 1918. Three vessels have now been delivered, although scarcely a year has passed since work on the plant was started.

The Northwest Steel Co., whose shipbuilding work also dates from the beginning of the war, has delivered 20 vessels of 176,000 total dead-weight tons capacity.

To understand thoroughly the enormous increase in shipbuilding facilities in the country resulting from the war programme a study should be made of the number of shipyards and shipbuilding ways in existence prior to the war and now in existence. In

this connection the following extract from the same report is of interest:

At the outbreak of the war, April, 1917, there were in the United States 37 steel yards having a total of 162 shipways, and 24 wood yards having a total of 72 shipways, capable of constructing ships of 3,500 dead-weight tons and over.

As of March 1, 1919, there were in the United States the following:

Shipyards	Number	Completed Ways
Steel-ship yards	67	420
Steel-tug yards	4	21
Wood-ship yards	77	357
Concrete-ship yards ..	6	
Wood-tug yards	18	
Wood-barge yards ...	9	23
Total	181	891

All shipyards are practically 100 per cent. completed.

TONNAGE DELIVERED, 1917-19

Month	Number	Dead-Weight Tons
1917		
August	1	2,930
September	7	40,600
October	13	85,085
November	17	76,310
December	11	97,190
Total	49	302,115
1918		
January	12	95,441
February	16	124,650
March	20	162,259
April	31	166,805
May	43	261,041
June	46	269,985
July	43	236,105
August	67	332,845
September	70	352,450
October	72	384,700
November	64	344,375
December	47	291,150
Total	531	3,021,806
1919		
January	27	163,400
February	39	237,300
March	44	254,175
April	109	547,540
May	139	795,050
June	120	591,208
July	130	694,328
August	132	707,175
September	146	792,303
October	113	573,933
Total	999	5,356,412

Tonnage Delivered.—Notwithstanding the effort made by the Government after the signing of the armistice to reduce the programme, at least in so

far as smaller and less desirable types of vessels were concerned, the record of vessels delivered by the American shipyards during 1919 has been a most notable achievement and indicates what might have been ultimately accomplished by American shipbuilders had the necessity for additional tonnage not disappeared with the signing of the armistice. The statement on the preceding page of monthly deliveries of vessels taken from recent statistics is worthy of careful study. It will be seen that the number of vessels delivered monthly increased steadily up to and including May, 1919, from which time on a gradual reduction in deliveries appeared by reason of the fact that no new orders were placed after November, 1918, and further by reason of the desire on the part of the Government to reduce the programme. (See also XVIII, *Manufactures*.)

Reduction of the Shipbuilding Programme.—In furtherance of the policy of putting the Government programme on as sound a financial basis as possible, from the signing of the armistice all overtime work has been discontinued, and shipyards have been cautioned to observe every possible economy and to increase the efficiency of those engaged in the various trades in the yards. While endeavoring to reduce the cost of the programme in this manner and to remove all unnecessary items of cost from vessels covered by arrangements required by war conditions and not applicable to general commercial practice, those in charge of the Government programme have been able to improve the quality of the vessels under construction. Great care has been taken in the design and construction of propelling machinery, boilers, and auxiliaries, as well as ship equipment of all kinds, and the builders have been urged to pay more attention than in the past to the installation of such machinery and auxiliaries in the vessels built for the Government.

After careful surveys of the programme as a whole, it was determined to cancel practically all of the concrete vessels under construction that were of necessity of experimental and emergency construction and as much of the wood programme, as well as

such steel vessels (particularly those of smaller size), as could be cancelled without undue loss. This action has not only considerably reduced the programme and effected a large saving in cost, but has materially improved the general standard of the vessels building by eliminating those of the less desirable types. The process of cancellation has naturally reacted to the disadvantage of many shipbuilding concerns who find themselves unexpectedly out of work, and the adjustment of the relations of these shipyards with the Government authorities has been and will be for some time a difficult matter. (See also I, *American History*.)

Disposal of Government Vessels and Yards.—During the year no one problem has been given more serious consideration than that of the disposal of the Government-owned vessels. Although the consensus of opinion seems to be that Government operation certainly, and Government ownership probably, is undesirable, no method of treating the problem as a whole has as yet been determined. The Government has been willing to sell and has sold some of its smaller vessels to foreign buyers as well as to American citizens at moderate prices and on attractive terms of payment. The Government has been unwilling, however, to dispose of any of its larger and more desirable vessels to interests other than American and has held this tonnage at prices considered by some to be excessive. But a very small number of these vessels have been disposed of by the Government as yet, and such tonnage as has been built and has not yet been sold is being operated for the most part by private organizations acting as the agents of the Government. (See also XIX, *Merchant Marine*.)

A strong effort is being made by shipowners in general and by others interested to have the prices at which Government vessels may be sold to American citizens revised to a point at which such vessels may be considered sufficiently attractive to justify private capital generally in investing in vessel tonnage. The problem must be attacked with great care, as it is manifestly undesirable to disregard the great existing investment in ship-

yards which would necessarily suffer should the vessels built by the Government be offered for sale at such low prices as to make competition on the part of the shipyards impossible.

Disposal of Excess Material.—As a result of the cancellation of vessel contracts and the general reduction in the Government programme, not only have certain shipbuilding facilities created for the emergency been turned back to the Government for disposal, many such properties having been made and created largely or altogether by Government funds, but in addition immense excess stores of materials and equipment of every character applicable to shipbuilding have accumulated and must be disposed of. The problem of successfully handling this situation is now receiving the most careful consideration on the part of the Government, and every effort is being made to secure the maximum salvage without disturbing the general conditions in the industry.

Quality of Government Ships.—So many unfounded criticisms have been passed about the character of vessel construction in the United States during the war that it seems well to place on record the actual facts as stated in the report of the Director-General of the Emergency Fleet Corporation above referred to, from which the following quotation is made:

Considerable adverse criticism has been made regarding the character of the vessels built by the Emergency Fleet Corporation on the grounds that such vessels were as a rule not only of inferior workmanship, but were so lightly constructed as to be actually weak and not calculated to have any real value except as the means of relieving the immediate emergency for which they were created.

In answer it may be said that on the score of workmanship, owing to the unprecedented increase in the demand for skilled workmen, the construction of the earlier vessels was not so well finished in some respects as would have been the case had the pressure been less severe. The conditions governing the construction of these vessels, however, were such that no weakness in construction was possible, as all of the designs for the vessels contracted for by the Fleet Corporation were approved by Lloyd's Register of Shipping or the American Bureau of Shipping, and carried the highest possible rating in each society.

Not only were the vessels designed to meet the approval of these classification societies, but they were without exception built under their supervision, as well as

under the supervision of the inspectors of the Emergency Fleet Corporation.

Recent Developments.—During 1919 little or no change has been made in ship construction or engineering connected therewith. The vessels under contract for the Government were for the most part of normal type, being mainly duplicates of vessels already constructed, and the machinery and auxiliaries for them were also in line with usual practice. Such investments as have since been made by private capital for new construction have also been for the normal type of vessel, for the most part propelled by machinery of the ordinary types. The investigation and development of the Diesel engine, however, is again commencing to receive careful and earnest consideration, as is also the application of electric drive to marine work of a commercial character. Conditions have not yet made it advisable to develop either of these to any considerable extent, but within the next few months it may be expected that vessels will be laid down which will be propelled by machinery of the most approved character, either oil engines or combinations of oil engines, turbines, and electric drive. (See also *Electrical Engineering*, and *Mechanical Engineering*, *supra*.)

The outlook for shipbuilding in this country at the present time is most uncertain. The problems to be faced are so serious and so much depends upon the manner in which the present emergency is met that it is unwise to make any prognostication for the future. It may be said generally that the interest in shipbuilding, shipowning, and ship operating in this country has greatly increased and that if American capital is permitted to own and operate vessels under conditions that will make possible competition with vessels owned and operated by foreign interests, there is no doubt that shipbuilding and ship operating will rank among the most important industries in this country. If, however, unwise action is taken in the major problems affecting the situation, the reverse will certainly be the case, and in that event the splendid shipbuilding facilities already created must inevitably suffer.

MATERIALS OF CONSTRUCTION

C. L. WARWICK

Brick.—Tests of building brick extending over six years have formed the basis of "Specifications for Building Brick" (*Proc. Am. Soc. Test. Mats.*, xix, Pt. I), which classify brick into four classes, vitrified, hard, medium, and soft, determined by specified limits for absorption, compressive strength, and modulus of rupture. The specifications prescribe methods of sampling and testing. As a criterion of durability and weather resistance, it has been proposed to specify an ice-freezing test or its equivalent, the so-called "sodium-sulphate test," in which the bricks are alternately immersed in a solution of sodium sulphate and then heated. The crystallization and expansion of the salt in the pores of the brick produce a rupturing effect similar to that caused in the freezing test. Investigations by Edward Orton, Jr., (*ibid.*) indicate the reliability of this test, when carefully standardized, in classifying clay brick; it does not, however, seem to be quite so reliable in the classification of certain other kinds of brick.

Cement.—In view of the attention now being given to fineness of cement, the investigation by D. A. Abrams on "Effect of Fineness of Cement" (*ibid.*, Pt. II) is of timely interest. This investigation includes 51 samples of cement of finenesses varying from two to 43 per cent. retained on the No. 200 sieve, and covers over 6,000 compression tests of concrete cylinders, 9,000 tests of mortars, and several thousand miscellaneous tests. A few of the principal conclusions from the tests are quoted:

There is no necessary relation between the strength of concrete and the fineness of cement, if different cements are considered.

In general, the strength of concrete increases with the fineness of a given lot of cement. The cements with residues lower than about 10 per cent. were inclined to give erratic results in the strength tests.

For residues higher than 10 per cent. the strength of concrete varies approximately inversely as the residue on the No. 200 sieve.

Fine grinding of cement is more effective in increasing the strength of lean mixtures than rich ones, and in increas-

ing the strength of concrete at seven days than at ages of 28 days to one year.

Ordinary concrete mixtures at 28 days show an increase in strength of about two per cent. for each one per cent. reduction in the residue on the No. 200 sieve.

The fineness of cement has no appreciable effect on the yield or density of concrete.

The type of aggregate has little or no influence on the relative effect of fineness of cement on the strength of concrete.

This investigation of Mr. Abrams brings this important subject prominently before engineers for their careful study. (See also *Civil Engineering*, *supra*.)

Two cements producing quick-hardening concrete are described by P. H. Bates (*ibid.*). A "calcium-aluminate" cement, manufactured on an experimental scale by the Bureau of Standards, is composed principally of lime and alumina, and produces concrete of high early strength, for example, over 3,000 lb. per sq. in. for 1:6 gravel concrete in 24 hours. "Sorel" cement, which is on the market, is produced by gauging calcined magnesia with magnesium chloride and develops in 24 hours a strength equivalent to that of Portland cement at seven days. Both of these cements are advantageous for certain special uses. Sorel cement finding its present principal commercial application in the manufacture of "composition flooring."

Concrete.—Laws of proportioning concrete have been developed during recent years. Two methods of proportioning stand out most prominently at present: Abrams' "fineness modulus" method (*Bull. No. 1, Research Lab., Lewis Inst.*) and Edwards' "surface-area" method (*Proc. Am. Soc. Test. Mats.*, xviii, Pt. II). The fineness modulus is the sum of the percentages in the sieve analysis of the aggregate divided by 100, expressing the analysis in terms of the total quantity of aggregate coarser than each sieve; and the relations, established by extensive tests, between fineness modulus, consistency of mix, amount of mixing water (*A. Y. B.*, 1918, p. 609), and strength of the concrete form the basis for proportion-

ing concrete by this method. The surface-area method assumes that the physical properties of concrete are primarily dependent upon the relation of the volume of cementing material to the surface area of the aggregate and recognizes the importance of water as an essential ingredient of concrete. A. N. Talbot (*ibid.*, xix, Pt. II) has developed a modification of the surface area method involving a function called "surface modulus" which is proportional to surface area. R. B. Young (*ibid.*) has endeavored to establish a relation between the two methods. It seems evident, however, that there is no definite relation between the fineness modulus and the surface area of *graded* aggregate, and it remains to be established which will better serve as a basis for proportioning concrete from given aggregates to produce concrete of specified strength. Other references on this subject are *Engineering News-Record*, June 19; and R. W. Crum, "Proportioning of Pit-Run Gravel for Concrete" (*Proc. Am. Soc. Test. Mats.*, xix, Pt. II). (See also *Civil Engineering*, *supra*.)

Valuable data on the elastic properties of concrete, based upon several thousand compression tests, are contained in a paper by Stanton Walker (*ibid.*). Defining modulus of elasticity as the ratio of an increment of stress to a corresponding increment of deformation, Walker proposes two fundamental laws governing elastic properties of concrete: the first expresses the relation between stress and deformation as $s = Kd^n$ where s = unit stress below the "yield point," d = unit deformation, K = a constant depending upon strength, and n = a variable exponent; and the second expresses the relation between ultimate compressive strength and modulus of elasticity as $E = CS^m$, where E = modulus of elasticity, S = compressive strength, C = a constant depending on conditions of the test, and m = a variable exponent. In a discussion of this paper S. C. Hollister proposes a different conception of modulus of elasticity, as the ratio of an increment of stress to the corresponding increment of *elastic* deformation, which he believes to be a better measure of elasticity of a material in

that it eliminates *plastic* deformation, that is, permanent set.

Other references to important investigations are:

HULL, W. A.—"Fire Tests of Concrete Columns." (*Proc. Am. Conc. Inst.*, xv).
SLATER, W. A.—"Structural Laboratory Investigations in Reinforced Concrete" (*ibid.*).

Gypsum.—Definite progress in standards for gypsum may now be recorded. "Specifications for Gypsum and Calcined Gypsum" and "Methods for Tests of Gypsum and Gypsum Products" have been issued tentatively by the American Society for Testing Materials (*Proceedings*, xix, Pt. I). A report on gypsum plasters specifying properties of materials and directions for erection and workmanship, has also been published as a basis for future specifications, as well as a report of recommendations relative to the use of reinforced gypsum in structural design, similar to the report on reinforced concrete published in 1917. Reference should also be made to Slater and Anthes, "Tests of Plain and Reinforced Gypsum Specimens" (*Proc. Western Soc. Engrs.*, Oct., 1919).

Non-Ferrous Metals and Alloys.—The standardization of non-ferrous metals and alloys noted in the last report (*A. Y. B.*, 1918, p. 610) continues to be a significant development. Specifications for lead, brass ingot metal, bronze bearing metal, solder metal and tinned annealed copper wire, and methods for assay of copper and chemical analysis of pig lead have been issued tentatively by the American Society for Testing Materials (*Proceedings*, xix, Pt. I).

Tests of light aluminium casting alloys are described by P. D. Merica and C. P. Karr (*ibid.*, Pt. II). Copper, zinc and magnesium are used to impart hardness and strength to aluminium castings. Alloys containing eight per cent. of copper are hard and readily machined but are brittle, having an elongation in two in. of only about two per cent. After testing several compositions, the authors conclude that an alloy containing only from two to three per cent. of copper with one or two per cent. of nickel or manganese, which has a tensile strength of 20,000–25,000 lb. per square inch and an elongation of five

per cent., should have commercial possibilities. The addition of magnesium to alloys containing copper reduces ductility but increases tensile strength and hardness. Annealing increases the tensile strength and hardness but generally decreases the ductility. The resistance of aluminium alloys to corrosion by the "salt-spray" test seems to be largely independent of their chemical composition. So far as the authors' tests go, there is no marked difference in the behavior of several compositions to alternating stress tests. It appears that the resistance to the action of alternating stresses does not increase in proportion as the tensile strength of the alloy increases. (See also *Mechanical Engineering, supra.*)

An important investigation of manganese bronze is reported by Merica and Woodward, "The Behavior of Wrought Manganese Bronze Exposed to Corrosion while under Tensile Stress" (*Proc. Am. Soc. Test. Mats.*, xix, Pt. II).

High-Speed Steel.—Interest in the development of high-speed steels continues, owing to their importance in increased shop production. J. A. Mathews (*ibid.*, Pt. II) describes the development of such steels from the original low-carbon, high-tungsten steel through the introduction of vanadium, the only addition to the earlier types which seems to have afforded universal improvement in quality, down to the recent experiments with cobalt and uranium. Opinions differ as to the value of cobalt; the advantages of "cobaltelrom" steel (*A. Y. B.*, 1918, p. 612) are not fully established. The importance of good steel-making and the need of developing less expensive and laborious tests to determine the efficiency of "red-hard" tools is emphasized. (See also XVII, *Iron and Steel.*)

Defects in Steel.—The occurrence of defects, popularly termed "flakes," exhibited in fractures of such alloy steels as nickel and chrome-nickel is discussed by H. S. Rawdon in a paper on "Microstructural Features of Flaky Steel" (*Trans. Am. Inst. Mining Engrs.*, 1919). Macroscopic, including X-ray, and microscopic examinations show "flakes" to be coarse intercrystalline discontinuities within

the steel the appearance of which suggests crystals "that were squeezed together while plastic and yet failed to adhere firmly to one another." They appear to originate in the ingot, are often associated with slag films, and occur in both transverse and longitudinal sections of the finished forgings. Details of mill practice appear to play a role in the production of these defects, the occurrence of which in such products as gun forgings was a serious problem during the war. That good manufacturing practice is the remedy seems to be the opinion of many. (See also XVII, *Iron and Steel.*)

A study of the origin and development of "internal transverse fissures" in steel rails has led to a promising method of investigation. Sections from failed rails developing transverse fissures have been etched or "pickled" for two hours in a hot solution of nine parts hydrochloric acid, three parts sulphuric acid, and one part water. The acid opens up transverse and longitudinal cavities the existence of which is not detected by light etching or by the usual methods of tests. Rails free from transverse fissures appear to be free from such cavities. These tests, which are described by F. M. Waring and K. E. Hofamann in a paper entitled "Deep Etching of Rails and Forgings" (*Proc. Am. Soc. Test. Mats.*, xix, Pt. II), have also been applied to new rails and to such forgings as steel wheels and tires. Microscopical and chemical examinations have not so far developed any apparent differences in microstructure that would account for the action of the acid. The authors express the belief that the cause must be sought in some stage of the manufacture. It has been suggested that the fissures that develop in these tests are the result of pressures induced by the formation of hydrogen gas evolved by the action of the acid combined with the internal strain present in the steels tested. The phenomenon appears to be analogous to the cracking of strained brass when attacked by certain salts (*A. Y. B.*, 1918, p. 611). Some studies by the U. S. Army Ordnance Office in connection with the manufacture of gun forgings have shown that deep etching reveals de-

fects that later develop into fissures and into the "flakes" previously referred to. (See also XVII, *Iron and Steel*.)

Magnetic Analysis of Steel.—Magnetic analysis as a determinant of the quality of steel products has continued to receive considerable study. Much of our present knowledge of the subject is reviewed in a symposium held at the 1919 meeting of the American Society for Testing Materials (*Proceedings*, xix, Pt. II). It is well established that certain magnetic properties are indicative of the mechanical properties of steel, and although much remains to be done along this line, the commercial application of magnetic analysis is most promising. The fact that the magnetic test does not destroy or in any way affect the usefulness of the part tested is of significant importance. The distinct and easily marked changes in magnetic properties resulting from various thermal and mechanical treatments of steel make it possible readily to test such products as cutlery, tools, springs, ball bearings, various automobile parts, etc. Much progress has been made in the detection of flaws, including "transverse fissures" and other inhomogeneities in rails, although there are indications that too great sensitiveness of testing apparatus must be guarded against in order not to cause rejection of material that is satisfactory for all practical purposes. There is reason for confidence in the ability of magnetic analysis to locate faulty rails in service. Another important application is in the study of changes that occur in connection with the phenomenon of fatigue.

Phosphorus and Sulphur in Steel.—The subject of phosphorus and sulphur in steel continues to be of economic importance. Although the conditions in the raw-materials market that led the American Society for Testing Materials in 1918 to increase the phosphorus and sulphur limits in 43 specifications as a war emergency measure (*A. Y. B.*, 1918, p. 613) have been somewhat relieved and the limits restored in 29 of the specifications, the situation is still serious. A comprehensive series of laboratory and service tests is being inaugurated by the Society to throw further light on the

effect of these elements and to enable the Society to determine safe limits to include in its various specifications.

Corrosion of Steel.—Sheets of uncoated steel of various compositions are being exposed by the American Society for Testing Materials at Annapolis, Md., Pittsburgh, Pa., and Fort Sheridan, Ill., under widely different atmospheric conditions. Semi-annual inspections have been made since 1918, but except for some definite failures in the destructive Pittsburgh atmosphere, it is too early to draw conclusions from the tests (*Proceedings*, xviii, xix, Pt. I). The influence of copper in retarding the corrosion of steel is discussed by D. M. Buck (*ibid.*, xix, Pt. II), who concludes that small percentages materially lower the rate of atmospheric corrosion, steel with 0.03 per cent. copper corroding only 60 to 70 per cent. as rapidly as the same steel with 0.01 per cent.

Standard Specifications.—Ten new standards were adopted in 1919 by the American Society for Testing Materials, including specifications for malleable castings, cartridge brass and naval brass rods, tests for flash point of volatile materials, specific gravity of sand and softening point of bituminous materials, and recommended practice for laying sewer pipe (*A. S. T. M. Standards Adopted in 1919*). Sixty-two standard specifications of the Society have been translated into Spanish by the U. S. Department of Commerce and published as part of an "Industrial Standards" series for distribution among consulate offices in South America as an aid to export trade.

Testing and Testing Apparatus.—Fatigue of metals is being studied by the Committee on Fatigue Phenomena in Metals of the National Research Council, under the chairmanship of Prof. H. F. Moore. Tests reported in a paper on the subject by Moore and Gehrig (*Proc. Am. Soc. Test. Mats.*, xix, Pt. II) indicate that the static tension test of steel is not a reliable index of fatigue strength; that high-stress short-time fatigue tests are not indicative of fatigue strength under oft repeated low stresses; and that certain heat treatment may raise the elastic strength of steel without in-

creasing its fatigue resistance under low stresses. The tests also show conclusively that the two methods of comparing the fatigue resistance of materials, namely, first, a comparison of the fibre stresses under which failure occurs for a given number of cycles of stress, and, second, a comparison of the number of cycles required to cause failure under a given stress, may lead to quite different conclusions.

Reference should also be made to Moore and Putnam, "Effect of Cold-Working and of Rest on Resistance of Steel to Fatigue under Reversed Stress" (*Trans. Am. Inst. Mining Engrs.*, Feb., 1919).

Tests of electrically welded joints in ship plates made by F. M. Farmer in a rotating type of alternating-stress machine indicate that the fatigue-resisting strength of the joint, at the present state of the welding art, is about one-twentieth that of the unwelded plate (*Proc. Am. Soc. Test. Mats.*, xix, Pt. II).

Comparative impact tests on the Olsen, Izod, and Charpy machines conducted by the Bureau of Aircraft Production (*ibid.*) indicate that there is no satisfactory method of converting results from one machine into terms of another, but that with proper standardization it is possible to check results on different machines of the same type.

The necessity for accurately determining the forces that a ship must resist and the stresses developed under actual service conditions led the Concrete Ship Section of the Emergency Fleet Corporation to devise recording strain gauges which could be placed at many points in the ship and operated simultaneously, so that an exact analysis may be made of the pressures and resulting stresses at any instant. The "strainagraph," as described by F. R. McMillan (*Proc. Am. Conc. Inst.*, xv), consists essentially of a lever system for multiplying the deformation due to stress and a moving chart,

operated electrically, upon which the deformations are recorded. The charts of a series of instruments are centrally driven and marked simultaneously at definite time intervals. Although developed primarily for the study of concrete ships, the instrument promises to be useful in structural investigations generally.

An extensometer for determining the elastic properties of wire, described by T. D. Lynch and P. H. Brace (*Proc. Am. Soc. Test. Mats.*, xix, Pt. II), consists of two flexible side pieces, one end of each being securely fastened to a slotted block, with yokes at their free ends carrying two hardened steel rollers, to each of which is fastened a mirror with its reflecting surface in the roller axis. The specimen passes through and is clamped to the slotted block and passes between the rollers. As the specimen elongates, the angular movement of the mirrors is magnified by reflecting a beam of light between the mirrors on a curved scale, which is readily calibrated to read to an elongation of 0.00002 in. The instrument combines to an unusual degree the delicacy of the optical lever with a good degree of facility in use.

A study of the physical properties of paint by E. C. Bingham and Henry Green (*ibid.*) has led them to conclude that paint is more properly a plastic material than a viscous liquid, since, unlike a liquid, it will "flow" only under applied pressure, corresponding to the yield point of certain metals. They have developed an instrument, called a "plastometer," which measures the mobility and "yield value" of plastic substances. As applied to paints it determines important properties to which little attention has heretofore been given and may profoundly influence developments in paint technology. Reference should also be made in this connection to Lloyd and Sharples, "Apparatus for Determination of Breaking Point of Pitches" (*ibid.*).

XXI. MATHEMATICS AND ASTRONOMY

MATHEMATICS

G. A. MILLER

Teaching of Mathematics.—An eloquent and forcible answer to those who during recent years have attacked the position held by mathematics in our educational curricula was furnished by the very large amount of mathematical teaching demanded by the Students Army Training Corps. The suggestive mathematical course prepared for these students by a volunteer committee of teachers was fully considered during the Dartmouth meeting of the Mathematical Association of America.

The greatest mathematical war service was rendered by the thousands of teachers who gave mathematical instruction in the universities and in the various Army and Navy camps at home and abroad. Many teachers of other subjects volunteered to assume the unusual burden of teaching a subject which they had largely forgotten in view of the inadequate supply of trained teachers of mathematics. The Y. M. C. A. rendered conspicuous service in its "Khaki University," especially in the development of brief but serviceable mathematical courses. J. W. Young (Dartmouth) acted as general director, and E. R. Hedrich (Missouri) was in charge of this service among the American soldiers in France (see XI, *The Army*; and XXX, *Education*).

Notwithstanding the importance of good mathematical teaching, little has been done towards a systematic study of the entire subject with a view to suggesting possible improvements. The International Commission on the Teaching of Mathematics, with its numerous subcommittees, made a noteworthy beginning in this direction, but the men who prepared the reports for these committees had to do the work during whatever time they could spare from other duties.

It is, therefore, interesting to note that through an appropriation of \$16,000 by the General Education Board two men, J. W. Young (Dartmouth) and J. A. Foberg (Crane Junior College), have been enabled to devote their entire time for a year, beginning July 1, 1919, to a study of the general mathematics-teaching situation, collaborating with the Committee on Mathematical Requirements of the Mathematical Association of America. Since so little has been published on college mathematics teaching, it is of interest to note here the appearance of Paul Klapper's book on *College Teaching* (World Book Co.), which contains a chapter on the teaching of college mathematics.

Mathematical Research.—Although as a means of winning the Great War, the need of good mathematical teaching was more widely recognized than that of good mathematical research, yet the need of the latter did not remain unnoticed. According to a circular letter issued in June, 1919, by the chief of the technical staff of the Ordnance Department of the Army, there was

the most gratifying result of substantial progress and the opening of new fields in which it is essential that the Ordnance Department continue investigation. . . . For example, it was found that the slight change in the form of the projectile for the 6" gun resulted in the range being increased two and one-half miles. . . . It is therefore important to secure the highest grade of men, expert in mathematics and dynamics, who will serve their country in the development of ordnance material to the greatest possible degree of superiority.

That the needs of the war have made a strong impression on mathematical research in this country is evident from various papers read before the American Mathematical So-

ciety. The retiring presidential address of L. E. Dickson (*Bulletin*, XXV, p. 289) was devoted to "Mathematics in War Perspective," and the programme of the joint session of this Society and the Mathematical Association of America during the annual meetings held at Chicago was devoted to mathematical problems connected with the war, especially to problems in ballistics and statistics. The lack of sufficient emphasis on applied mathematics in American mathematical research has been recognized for a number of years, and the needs of the war have served as a sufficiently strong corrective force. It is to be hoped that the pendulum will not swing too far in the other direction, for pure mathematics has always been a real source of mathematical progress. In addition to the Mathematical Committee of the National Research Council noted in the YEAR BOOK for 1917 (p. 569), research mathematical service for the Army was organized under three commissioned officers: Major O. Veblen (Princeton) was in charge of the Aberdeen (Md.) proving grounds; Major F. R. Moulton (Chicago) had charge of an office in the Ordnance Department at Washington largely devoted to the computation of range tables; and Major E. V. Huntington (Harvard) was in charge of the statistical work at Washington. These men had associated with them a considerable number of other active American mathematical investigators, and the problems with which these investigators were thus brought in direct contact will doubtless greatly influence the future trend of American mathematical research.

History of Mathematics.—The publication by the Carnegie Institution of Washington of Volume I of a *History of the Theory of Numbers* by L. E. Dickson (Chicago) marks the beginning of a new type of work by American mathematicians. The theory of numbers represents a field which has been cultivated since the time of the ancient Greeks and which still offers many problems inviting to the beginner as well as to the mathematician of greatest maturity and power. Professor Dickson's work "aims to give an adequate account of

the entire literature of the theory of numbers," and his first volume, devoted to divisibility and primality, gives promise that this aim will be realized to a remarkable degree.

A work of very different type is the second and enlarged edition of *A History of Mathematics* (Macmillan) by Florian Cajori (California). This edition contains about twice as much material as the first edition, published a quarter of a century earlier, and most, but not all, of the work of the earlier edition embodied in this one has been carefully revised. Hence this edition is practically a new work on the history of mathematics, and the large amount of space devoted to modern mathematics is especially noteworthy. It is mainly due to this fact that the work of American mathematicians receives considerable attention, as a glance at the index will make apparent. Still, the fact that the largest number of index references, even among living mathematicians, appear after the names of Europeans.

While the work by Dickson is of especial interest to the investigator, that by Cajori will naturally make a great appeal to teachers and to those who seek a broad general knowledge of developments in the entire field of mathematics. Both works represent ripe scholarship in their respective fields and constitute noteworthy American contributions to the advancement of mathematics. Cajori's work fulfills much more nearly the popular conception of a mathematical history than does that of Dickson, but the latter should contribute to clarify the common conceptions as to the scope of this history.

Reference Works.—The proposed mathematical dictionary mentioned in this YEAR BOOK for 1917 (p. 568) was naturally delayed by the war. During the summer meeting of the Mathematical Association of America, held at the University of Michigan, the project was again taken up and reported to be feasible provided necessary financial aid can be secured. The publication of a revised edition of the *Encyclopædia Americana* seems noteworthy here in view of the numerous articles by competent American mathematicians it contains.

ASTRONOMY

R. S. DUGAN

General.—The year 1919 has been devoted by most observatories and astronomers to picking up the lines of research dropped during the war. Very few observatories were able during the preceding two years to keep up much of their regular routine work. Many astronomers were absent either in active service or engaged in the scientific research of various Government agencies or in teaching navigation.

An International Astronomical Union was organized at a meeting in Brussels during July, attended by a delegation of American astronomers headed by W. W. Campbell. This Union will take over and carry forward the projects already undertaken in international coöperation and through committees will encourage and report the progress of new projects and problems which require international coöperation for their successful completion and solution.

Edward Charles Pickering, director of the Harvard College Observatory for 42 years, died on Feb. 3, 1919. Early in his career he decided that photometry "offers a field almost wholly unexplored with large telescopes." With the meridian photometers invented by him large numbers of stars were measured, both at Cambridge and at the Arequipa Station in Peru, and reduced to a standard system of magnitudes. Pickering himself made one and one-half million photometric settings. Later the problems of photographic photometry were taken up, by him and under his direction, and the foundations of this branch of the science laid.

One of the great treasures of the Harvard Observatory is the great library of photographic plates collected in the "sky patrol," which has been kept up, with telescope cameras of large field, without interruption for over a quarter of a century. With the plates taken at Arequipa supplementing those taken at Cambridge, the entire sky has been photographed as often as possible, and thus the history of the entire sky through all these years has been permanently preserved. This storehouse has been

available to any one who might be interested in the history of any particular celestial body. Another collection of photographs of unique value is the one of stellar spectra obtained with the objective prism. The well known Draper Classification of Stellar Spectra derived from these plates has been adopted internationally. The new Draper Catalogue, for which Miss Cannon has classified over 200,000 stars from these plates, being published in the *Harvard Annals*, has reached its third instalment, containing 24,471 stars, covering the seventh and eighth hours of right ascension.

The American Astronomical Society held its annual meeting in September at Ann Arbor, Mich. In addition to the papers read by members of the Society, reports of the organization of the International Union were given by Schlesinger, Stebbins, and Bauer, and of the work of the National Research Council in mathematics and astronomy, by E. W. Brown.

Military Research.—Russell in flights from Langley Field made during the war over a thousand sights on sun, moon, and stars, testing the possibilities of sextant observations for the navigation of airplanes. An interesting account of these experiments is given in the June, 1919, number of the *Publications of the Astronomical Society of the Pacific*. It was usually found better to remove the telescope and observe with the naked eye. A single sight with the natural horizon gives the altitude of the sun with an average error of three minutes. The natural horizon is usually lost at an altitude of one or two thousand feet. The haze with which the lower air is filled often shows a sharp upper boundary which can be used as a horizon provided the height of this false horizon is estimated. The upper surfaces of cloud layers can sometimes be used in the same manner. Apparently the main difficulty encountered in using these false horizons lies in the presence of ridges in the haze or cloud surface, the measurements of altitude depending on the horizontal distance of the observer from such a ridge.

Observations were made with an artificial horizon consisting of a mirror mounted at the upper end of a pendulum damped in viscous liquid, and also with the bubble sextant devised by Prof. R. W. Willson of Harvard University. The chief error in such observations lies in the deviation of the apparent vertical, arising from irregularities of motion of the airplane. With careful piloting these have been reduced to an average of ± 13 miles for a single sight. From sights on the sun and moon the positions of the airplane, as determined by Sumner's method, showed an average error of seven nautical miles when the natural horizon was available and 15 miles with the bubble sextant.

Other data of considerable interest to astronomers were obtained by Luckiesh while engaged in an investigation of the visibility of airplanes. Photometric observations of the brightness of the earth's surface were secured at altitudes of 1,000–5,000 ft. looking vertically downward. The four types of surfaces considered, fields, barren land, woods, and inland water, inclusively represent the earth's surface with the exception of cities, towns, and villages. The brightness is given as a percentage of the brightness of a horizontal, perfectly reflecting and diffusing opaque white surface under the same illumination. The mean results from a large number of measures made during the summer were: fields (including pastures and growing crops) 6.8 per cent.; barren land (including plowed ground and waste land without vegetation), 13.0 per cent.; woods, 4.3 per cent.; inland water, 6.8 per cent. A short series of measures made during the autumn gave very nearly the same results. The low values are accounted for by the light traps and shadows which grass plots, cornfields, plowed ground, woods, etc., provide by their depth. The brightness of water depends upon its depth and upon the brightness of the sky and clouds reflected in it. Most of the brightness of water is due to the light diffused within it, which rises to quite high values when the water is shallow and turbid. Values for the upper surfaces of clouds in full sunlight ranged from 78 per cent. for

very dense clouds of extensive area and great depth down to 36 per cent. for thin clouds. Very deep blue sky and dark overcast skies are approximately of the same brightness. The sky contributed about one-sixth, and the sun directly about five-sixths, of the total light on the earth's surface on clear days. (*Astrophys. Jour.*, xlix, 108.)

Observatories and Instruments.—

Work on the Mt. Wilson 100-in. reflector (*A. Y. B.*, 1917, p. 570) was held up during the war, but it is now in commission and working well. Photographs of spectra, clusters, and planetary nebulae were shown at the September meeting of the Astronomical Society. A good spectrum of a star of the twelfth photographic magnitude is secured in five minutes. The amount of detail brought out in nebulae and in the moon's surface shows that this biggest telescope is fully as good as the big 60-in.

The disk for the principal mirror of the 72-in. reflecting telescope of the Dominion Astrophysical Observatory at Victoria, B. C., was shipped from Antwerp only about a week before war was declared in 1914. It was ground and figured in the United States and shipped to Victoria in April, 1918. The building and dome had already been erected and the mounting was in place. The telescope was at once set up, and as the entire installation functioned perfectly from the start, regular observing was instituted the first week in May, 1918. The mounting has several new features, including dependence upon ball bearings for both collimating and friction-relieving functions and the use of differentials providing right-ascension slow motions absolutely without backlash. The tube of the telescope was made long enough for both the Newtonian and prime focus forms, so that it is only necessary to put in the comparatively light secondary mirror in its cell when a change to one of these forms is to be made. The two main ribs of the dome, which is 66 ft. in external diameter, carry the shutters, wind curtains, and observing platform. From the observing platform, which is raised and lowered by electric motors along the semicircular ribs of the

dome, the observer can conveniently reach the upper end of the tube in whatever position the instrument is set. The photography of stellar spectra for the determination of radial velocities will constitute the main programme for this telescope. With a single-prism spectrograph giving a dispersion of 35 Å. per millimeter at H γ the spectrum of a star of the seventh photographic magnitudes is obtained in 25 minutes.

The Sun.—The evidence gathered at Mt. Wilson for the magnetic polarity of sun spots has been referred to in previous issues (*A. Y. B.*, 1915, p. 586, 1917, p. 571). The present state of the problem is given in the *Astrophysical Journal* (xlix, p. 153), by the Mt. Wilson observers. Sun spots frequently occur in pairs, usually accompanied by many minor spots. The two principal spots may be several degrees apart. The line connecting the pair usually makes only a small angle with the sun's equator. The two principal members of a spot group are almost invariably of opposite magnetic polarity. This tendency toward bipolar structure is so strongly marked that hardly more than 10 per cent. of all spots observed are wholly free from it. Even in the case of spots that are apparently single, this same tendency is usually indicated by the presence of a greater area of faculae or calcium flocculi on one side than on the other. Single spots thus accompanied by a train of flocculi are classified as either the preceding or following spots of incomplete bipolar groups. The polarities of preceding spots are opposite in the two hemispheres—analagous to the opposite direction of whirl invariably observed in northern and southern terrestrial cyclones.

Since the sun-spot minimum in December, 1912, the polarity of the members of bipolar groups has been opposite to that observed before the minimum. It was suggested at the time of the reversal that this phenomenon might be due to the difference in latitude between the old and the new cycle of sun spots. The latitude of the new cycle has steadily decreased, however, in the usual manner, and the maximum of solar activity has definitely passed and there

has been no further reversal. The close of the present cycle should settle the question whether a reversal of sign is actually characteristic of the sun-spot minimum. The problem of interpretation is complicated by the fact that the hydrogen whirls overlying spots of a given polarity may be either right-handed or left-handed.

Eclipses.—Some of the definite results obtained from observation of the total solar eclipse of June 8, 1918 (*A. Y. B.*, 1918, p. 617) have been published during 1919. The results of Kunz and Stebbins are among the most interesting, involving, as they do, a new departure in the observation of eclipses, namely, the determination of the brightness of the corona by means of a photo-electric cell. The observed total light of the corona was 0.60 candle-metres, which, when corrected to outside the earth's atmosphere, becomes 1.07. The ratio of corona to full moon, similarly corrected, was 0.50. The corona gave one-tenth the light of an area of daylight sky of the apparent size of the sun and eight degrees distant. The corona was 640 times as bright as that area of the sky during totality. It follows that the sky intensity was reduced 6,100-fold by the moon's shadow. These results are not easily compared with earlier photographic and visual measures, and it is hoped that the photo-electric measures can be repeated during future eclipses.

The total solar eclipse of May 28–29, 1919, the track of which crossed South America, the South Atlantic Ocean, and Africa, was an exceptionally favorable eclipse to serve as a test of the Einstein hypotheses of relativity. Several bright stars were close to the sun's limb during totality, and in the hope that photographs could be secured that would show whether there was any displacement of a star's position due to the passage of the light through the sun's gravitational field, expeditions were sent to the east coast of Brazil and to the west coast of Africa. Although weather conditions were disappointing and the number of good plates secured was not large, there seems to be no doubt that Einstein's prediction of a shift of 1".75 at the sun's limb was very closely verified in the

average of the results at the two stations. The values found from the plates secured in Brazil and Principe Island are $1''.98 \pm 0''.12$ and $1''.60 \pm 0''.3$, respectively. This agreement, combined with the explanation of the motion of the perihelion of Mercury, goes far to establish the theory as an objective reality. (See also XXIII, *Physics*.)

Bauer located for the 1919 eclipse in Liberia, almost on the magnetic equator. The variation in the earth's magnetic field during the eclipse was easily observed, (see also XXII, *Terrestrial Magnetism*). An interesting proof of the direct action of sunlight on the transmission of Hertzian waves was furnished by the eclipse. Signals from the wireless station on the Island of Ascension can ordinarily be received at the Meudon Observatory during the night, but none has ever been received during the daytime. A large part of the distance of 5,000 km. was in the moon's shadow. The signals could be clearly heard at Meudon during the eclipse but gradually died away as the shadow passed.

Structure of Saturn's Rings.—A study of the reflecting power of Saturn's rings by Louis Bell gives us a new picture of this system (*Astrophys. Jour.*, 1. 1). The equatorial belt of the planet has approximately the reflectivity of a bright cloud. The outer part of the B ring is even brighter than this region. The A ring is conspicuously darker than the B ring, matching the darker portions of the ball, and the brightness of the C ring is not over a few hundredths that of the B ring. The problem, therefore, is one of accounting for albedoes ranging from well toward the limiting reflecting power of known substances down to that of black paper.

No plausible terrestrial substance when in massive form can give anything like the reflectivity of the bright part of the B ring. It is well known that all substances when finely powdered reflect light diffusely, a smooth, flat surface of fine powder showing much higher reflectivity than the same material loosely aggregated. No assemblage of satellites, no matter how closely packed, could give the albedoes called for. Many lines of ev-

idence, such as Wood's photographs in monochromatic light, photographic prints of various lengths of exposure, the appearance and location of the condensations in the ring system when received edgewise and at small angles, the visibility of satellites and stars through the rings, factor of safety of stability, the gravitational effects of the satellites proper, and the pressure of light, all combine to furnish the following picture of the ring system:

The ensemble of the ring system thus presented is a substantially plane, very thin stratum of bodies of meteoric size swept permanently clear at Cassini's division, thinned and grooved elsewhere by the perturbations of the satellites, denser near the grinding zones of action, and thinning out away from them. Permeating and overlaying this is a loose body of widely scattered dust more and more tenuous away from the ring plane, and everywhere away from it so thin a cloud that it reflects no visible light save when seen in great thicknesses edgewise. This floating spin-drift of the ether, thin as autumn haze, is billowed and wind driven by the gravitational waves in the ring planes, and by the ever acting pressure of radiation which sweeps the particles back and forth over the rings, and drives them down upon and through the sunlit side to be visible below when and where the light can filter through to illuminate them. It is a scene of perpetual change steadied only by the mass of the whirling ring plane itself.

Comets.—No comets were discovered during the first half of 1919. Kopff's comet of 1906 was discovered on July 30 by Wolf at Heidelberg, a few days later by Gonnessiat at Algiers, and still later, likewise independently, by Metcalf. This comet was not favorably situated for observation at its last return in 1912 and was not then seen. It was much too faint at the time of discovery to be seen with the naked eye, and it has been growing fainter as it recedes from the earth. Comet discoveries by Metcalf followed each other with spectacular rapidity. While on his vacation in Vermont, he found in three nights three comets which to him were new. Comet 1919b discovered by Metcalf on Aug. 20, is probably, judging from the similarity of the orbital elements, identical with Brorsen's comet of 1847. Metcalf reported it as of the eighth magnitude. In September, when nearest the earth, it became a faint naked-eye object, magni-

tude five, but after that did not brighten much. It passed perihelion in the middle of October. Comet 1919c was discovered by Metcalf on Aug. 22 and independently by Borelly on Aug. 23. It was of the tenth magnitude when discovered, and, although later brightening considerably, did not become visible to the naked eye. It passed perihelion outside the earth's orbit in December. Comet 1919d, discovered by Sasaki on Oct. 25 at the Kyoto Observatory, turns out to be identical with Findlay's Comet, which was expected to return in 1919. Schaumasse's periodic comet 1911: VII has apparently returned as 1919e, discovered by Fayet on Oct. 29.

Absolute Dimensions of Eclipsing Binaries.—Very few of the known eclipsing variables are bright enough in both components to permit a spectrographic determination of their orbits. When such is the case, however, such data can be combined with that secured from the interpretation of a good photometric light curve and the absolute dimensions of the system determined. Four such cases have been completely solved during the year, W Ursæ Majoris and Z Herculis by Adams and Joy, and U Ophiuchi and R S Vulpeculæ by Plaskett. The first and last are of especial interest. The orbital revolution of the components of W Ursæ Majoris is completed in the exceptionally short time of eight hours. The stars are so big compared with the orbit that the distance between them is very small, and they are very much elongated in the line connecting their centers. The difference in velocity in the line of sight, due to the rotation of each star, may be as great as 240 km. for the two limbs. This difference obliterates the faint lines entirely and so widens and weakens the stronger lines as to make them difficult of measurement. The densities of the components are exceptionally high, being 2.8 and 1.9 times that of the sun. The components of R S Vulpeculæ are remarkably unlike. The total light of the fainter is nine-tenths that of the brighter, but the diameter of the former is five times that of the latter. The surface brightness of the fainter is therefore only about one-twenty-eighth that of the brighter. Further,

the mass of the big star is but a third that of the small star. The radius of the latter is twice that of the sun while its mass is over five times as great. The densities are 0.7 for the brighter and 0.0017 for the fainter, in terms of the density of the sun.

The Orion Nebulosity.—Slipher has secured spectra of several of the nebulosities lying within the great encircling cloud of nebulosity in Orion. The spectra are found to vary with distance from the Great Nebula. "If these nebulosities are to be regarded as parts of one great nebulous formation centering about the Trapezium, and it seems that they are really such, then the variation in spectrum may be said to begin in the center with the usual emission type which loses strength (different substances differently) with distance outward and ends finally, in the most distant masses, with a continuous spectrum of the normal stellar absorption type." These most distant nebulosities are apparently illuminated by reflected star light, and as these nebulosities are in regions strikingly deficient in stars, they probably extend beyond the limits of their luminous portion and absorb the light of the more distant stars. (*Publ. Astron. Soc. Pacific*, xxxi, 212.)

A study of the Orion Nebula has also been made by Reynolds, who by the use of screens has secured photographs showing the distribution of nebulum and hydrogen in this region. Hydrogen extends out much farther than nebulum. (*Monthly Notices Roy. Astron. Soc.*, lxxix, 561.)

Bright-Line Nebulae.—The programme of measuring the radial velocities of all known objects of the bright-line nebulae bright enough to be observed with exposure times of practicable length having been completed by the Lick Observatory staff, some of the statistical results have been published. In addition to the 18 nebulae in the Magellanic clouds there are six planetary nebulae, located in a very small area of the sky, the observed radial velocities of which exceed ± 115 km. per second. The system of the remaining 101 nebulae as a whole is substantially at rest with reference to our stellar system. Planetary nebulae the diameters of

which are less than five seconds have been called "stellar" nebulae. Excluding the six planetaries of high velocities, the 31 stellar nebulae show an average radial velocity with reference to the stellar system of ± 28 km. per second. That of the other planetaries (having diameters greater than five seconds) is slightly greater. Stellar nebulae are found exclusively in one quadrant of the Milky Way.

Structure of the Sidereal Universe.

—In his later studies Shapley has completed the determination of the distances of all known globular clusters, 86 in number; has collected further data regarding their ellipsoidal form; and has drawn some conclusions as to the arrangement of the sidereal universe. Of 41 clusters studied, 30 show an appreciable elongation, analogous to that of the spiral nebulae and the galactic system but of a very much lower order. Globular clusters are small compared with the galactic system. There is a striking similarity in dimension and content. Open clusters appear to occur in the dense stellar regions of the galactic plane where globular clusters are not found. The globular clusters are apparently as a class approaching the sun, and are, as Shapley infers, approaching and falling into the dense stellar strata of the general galactic system. On the other hand, the brighter spiral nebulae as a class are receding from the sun and from the galactic plane. Their distribution is also in sharp contrast to that of the globular clusters. The heterogeneous makeup of the galactic system indicates that this system may be largely composed of disintegrating clusters. As a preliminary hypothesis it is suggested that "the discoidal galactic system originated from the combination of spheroidal star clusters and has long been growing into its present enormous size at their expense . . . that the galactic system now moves as a whole through space, driving the spiral nebulae before it and absorbing and disintegrating isolated stellar groups."

Sources of Stellar Energy.—It has become increasingly evident that gravitational contraction must be but a small source of the energy which the sun and stars have radiated in past

ages. It must be assumed, therefore, that there exists within the stars some unknown store of energy of enormous magnitude. Russell has suggested some of the probable general characteristics of this unknown store. The process comes into operation only under extreme conditions of temperature or pressure; the energy is derived from a finite store which is gradually exhausted, more slowly as the remaining supply decreases; the rate of transformation of energy does not accelerate to the point of explosive catastrophe; and heat is supplied to the star at almost exactly the rate at which the star radiates heat to space. Without entering into any discussion as to the nature of the source, Russell points out that a sphere of perfect gas losing heat by gravitational contraction would grow rapidly hotter and thus probably pass rapidly through the earlier stages of its development. When such a temperature was reached in the nucleus that part of the unknown store could be liberated, this store would supply more and more of the radiation, and the contraction would be checked. If the central temperature rose too high, the star would expand, its temperature would fall, and the supply of heat would be partially cut off. Such a hypothesis explains the lack of very red giant stars, the lack of evidence of any change in stars of later types, and the maintenance of variability of the Cepheid type. (*Publ. Astron. Soc. Pacific*, xxxi, 205.)

Bibliography.—The following are the principal books of the year:

- AITKEN, Robert Grant.—*The Binary Stars*. (New York, Douglas C. McMurtrie, 1918.)
 BARRELL, J., and others.—*The History of the Earth*. (New Haven, Yale Univ. Press, 1918.)
 BELOT, Emile.—*L'Origine des Formes de la Terre et des Planètes*. (Paris, Gauthier-Villars, 1918.)
 JEANS, J. H.—*Problems of Cosmogony and Stellar Dynamics*. (Cambridge Univ. Press, 1919.)
 KAYE, G. R.—*The Astronomical Observatories of Jai Singh*. (Calcutta, Supt. of Govt. Printing, 1918.)
 MÜLLER, G., and HARTWIG, E.—*Geschichte und Literatur der veränderlichen Sterne*. Band I. (Leipzig, Poeschel & Trepte, 1918.)
 PLUMMER, H. C.—*An Introductory Treatise on Dynamical Astronomy*. (Cambridge Univ. Press, 1918.)

XXII. GEOLOGY, METEOROLOGY, AND GEOGRAPHY

GEOLOGY

DYNAMICAL AND STRUCTURAL GEOLOGY

J. B. WOODWORTH

Isostasy.—The late Joseph Barrell had ready for publication at the time of his death two important papers on isostasy, "The Nature and Bearing of Isostasy" and "The Status of the Theory of Isostasy," (*Am. Jour. Science*, xlviii, Oct., 1919). The second paper gives a clear exposition of the doctrine of isostasy, with certain strictures on the fundamental postulate in Hayford's work.

Temperature of the Earth.—C. E. Van Ostrand (*Jour. Wash. Acad. Science*, ix, July, 1919) calls attention to the observations concerning temperature in deep wells in Texas and Oklahoma. The curves of temperature increasing with depth are generally marked by a convexity towards the axis of depth. In the Goff well the rate varies continuously from 1° F. in 97.5 ft. at the surface to 1° F. in 46.5 ft. over the interval 6,000 to 7,000 ft. Temperatures obtained at similar depths in the oil fields of Texas and Oklahoma differ widely from those obtained in the Appalachian field.

Glacial Deposits.—R. W. Sayles ("Seasonal Deposition in Aqueo-Glacial Sediments," *Mem. Mus. Comp. Zool. Harvard Coll.*, xlvii, Feb., 1919) describes in detail the banding in glacial clays and summarizes in affirmation the thesis that the alternations from light and coarse to dark and fine bands represent, respectively, summer and winter conditions of deposition, found not only in the clays of the last glacial period but in certain lithified clays of the Permo-Carboniferous sections, associated with tillite beds. F. F. Grant and T. M. Broderick (*Am. Jour. Science*, Sept., 1919) refer certain structures

heretofore known as "contorted beds" in the chert formation of the Upper Huronian (Animikie) of the Mesabi range in Minnesota to algal growths.

Coral Reefs.—T. Wayland Vaughan ("Fossil Corals from Central America," etc., U. S. Nat. Museum, Bull. 103, 1919) discusses the bearing of the conditions under which the West Indian, Central American, and Floridian coral reefs have formed on theories of coral-reef formation. He points out that the elevated Pleistocene fringing reefs of the West Indies are separated by erosion unconformities at their bases from the geological formations they overlie, but that they were usually formed during intermittent uplift following considerable depression. The offshore reefs were formed during or after depression and grew upon, or are growing upon, antecedent flats, only a small part of the surface of which was or is covered by reefs. Such flats occur outside of the coral seas. The submergence of the basements of fossil reefs seems to the author reasonably explained by differential crustal movement. But the development of living reefs seems to him in large part a result of a geologically recent rise in the ocean level, seemingly as much as 20 fathoms, and in places facts indicate a maximum between 30 and 40 fathoms. The available evidence is held to accord with the hypothesis that glacial control is one of the important factors in bringing about the formation of living coral reefs.

R. A. Daly (*Am. Jour. Science*, Aug., 1919) amplifies certain problems concerning the development of coral reefs during and after the glacial period with emphasis on the effect of successive episodes of glaciation and deglaciation with concurrent rise and fall of sea level. The effect of mud and sand stirred up by

vacillating sea level in checking coral growth is added to that of lowered temperature in epochs of glaciation as a factor of the glacial-control hypothesis. W. M. Davis (Trans. N. Z. Inst., li, 6) discusses the significant features of reef-bordered coasts, touching here and there on the views of others (see also *Physical Geography*, infra).

Geology of the United States.—

Among the larger contributions of the U. S. Geological Survey published since the YEAR BOOK for 1918 (see also IX, *U. S. Geological Survey*) are Prof. Paper 110, "A Geologic Reconnaissance of the Inyo Range and the Eastern Slope of the Southern Sierra, Nevada, California," by Adolph Knopf, including a geological map of the Owen's Lake region and Mt. Whitney; Prof. Paper 120-B, "Geology of Northeastern Montana," by Arthur J. Collier; and 120-D, "The Structure and Stratigraphy of Gravina and Revillagigedo Islands, in the Southern Part of the Panhandle of Alaska," by Theodore Chapin, describing a region of strata from probably late Carboniferous to upper Triassic age overthrust towards the southwest along with the included upper Jurassic batholithic injections of granodiorites and quartz diorites. Prof. Paper 108, comprising a group of shorter contributions to general geology made in 1917, has an article by G. S. Rogers on baked shale and slag formed by the burning of coal beds in the Northwest. The author is of the opinion that most of the burning of western coal beds has been spontaneous under conditions in which the physical factors promoting ignition are a finely divided condition of the coal or lignite, a slight increment of heat from an outside source, and sufficient volume of coal to retard loss of heat by radiation. N. H. Darton writes on a comparison of a Palæozoic section in southern New Mexico, recognizing a thick development of the early Ordovician (El Paso formation), 150 to 400 ft. of upper Ordovician (Montoya beds), and a variable section of Silurian strata (Fusselman beds). The lower formations thin out northwards so that the Pennsylvanian series lies directly on the Pre-Cambrian in central New Mexico.

E. W. Shaw contributes a paper on the Pliocene history of northern and central Mississippi, in which he concludes that the Lafayette formation so-called is a residual mantle of no one epoch but is made up of unrelated materials accumulated during Pliocene and Pleistocene time. He finds a large amount of deformation of strata in Mississippi, which probably took place in Pliocene or early Pleistocene time. A triangular area of which Jackson, Vicksburg, and Natchez form the corners has been elevated in and perhaps after Pliocene time. There appears also to have been an east-west and a northeast-southwest belt of uplift through Jackson, and another uplift east of the southeast corner of the state, the maximum uplift amounting to at least 200 ft. The investigation of oil and gas fields has resulted in several reports dealing with structural geology (anticlines), such as Bull. 686, on the structure and oil and gas resources of the Osage reservation in Oklahoma.

Schuchert in a brief note ("The Taconic System Resurrected," *Am. Jour. Science*, Feb., 1919) records his agreement with Lapworth's proposal to employ the name Taconic for the period or epoch of the world-wide Olenellus zone of the so-called lower Cambrian, repeating a suggestion made in 1918 that this resurrected Taconic should be regarded as a period ranking between the Cambrian above and the pre-Cambrian below. Bailey Willis (*Bull. Geol. Soc. Am.*, xxx, March, 1919) under the term "Pacific ranges" includes the Coast Range and the Sierra Nevada, the structure of which is described as an effect of compressive stress, differing from that of the Appalachians in that the folds and low-angle overthrusts of the latter region are in the Pacific ranges replaced by a rotated mountain block guided by a high-angle upthrust forming the eastern face of the Sierra, now appearing as a normal fault plane, but regarded in this hypothesis as a curved thrust surface, curving back under the block.

The geology of Dallas County, Texas, is described by Ellis W. Shuler (Univ. of Texas, Bull. No. 1818, March, 1918), with some details

of the A-shaped and V-shaped fault blocks into which the Austin chalk beds are broken.

The New York Geological Survey reports (Report of the Director of the State Museum, 1917) that the field work on the Gouverneur, Lake Placid, Schroon Lake, Phelps, and Richfield Springs quadrangles has been completed or revised in some particular. H. P. Cushing found on the Gouverneur quadrangle that the Pre-Cambrian Grenville strata were closely folded in pitching isoclines invaded by granite sills protruded from an underlying body believed to be syenite. H. L. Alling in the same report has a paper on the geology of the Lake Clear region, and John M. Clarke publishes a map of the peninsula of Percé, P. Q., with explanation. (See also IX, *State Geological Surveys*.)

Geology of Alaska.—The Nenana coal field of Alaska has been described by G. C. Martin (U. S. Geol. Survey, Bull. 664, 1919). The beds are Tertiary, from 1,200 to 1,500 ft. thick. The coal areas are in the form of shallow basins in which the beds are locally steeply folded or faulted against masses of crystalline rocks which separate the basins. G. L. Harrington (Bull. 683, 1918) describes the geology of the Anvik-Andreafski region of gold placers in Alaska. Stephen H. Capps (Bull. 687) gives an account of the geology of the Kantishna region, Alaska, illustrated with striking reproductions of photographs of the country north of Mt. McKinley.

Geology of Canada.—The summary report of the directing geologist of the Geological Survey of Canada, William McInnes, for 1917 reports 84 memoirs of the Geological Series published. The geological map of the Duncan quadrangle, Vancouver Island, by Clapp is accompanied by sections showing a mountain-built district of folded and intruded rocks followed by normal faulting and erosion between the Jurassic and the Cretaceous. J. S. Stewart (Mem. 112) has mapped and described the folded and faulted Jurassic, Cretaceous, and Tertiary strata in the foothills of southern Alberta. The faults are chiefly upthrusts from the west. Charles

Camsell and W. Malcolm (Mem. 108) report on a geological reconnaissance of the Mackenzie River basin and summarize existing knowledge of the geography and resources of the district about the upper "great lakes" of North America. The report contains a useful bibliography.

Geology of South America.—Anselmo Windhausen (*Bol. Acad. Nacional de Ciencias de Cordoba*, xxiii., 319) describes the geological history of the coastal plain of northern Patagonia, introducing the idea of intersecting northeast- and northwest-trend lines of fracture as controlling the outline of the coast and certain features of the interior. The same author and Roberto Beder (*ibid.*, 255) report the presence of fossiliferous Devonian shales intercalated between sandy beds in the hill Aparipi in central Paraguay. K. Walther (*Revista del Instituto Nacional de Agronomía de Montevideo*, Dec., 1918) has published an account of the geology of Uruguay accompanied by a geological map showing the distribution of the crystalline rocks of southern Uruguay and the overlying Permian-Triassic beds of central and northern Uruguay.

Bibliography.—The *Journal of Geology* (Univ. of Chicago Press) contains currently notices and reviews of articles on geological subjects. An annual bibliography, usually late in appearance, is published by the U. S. Geological Survey; the latest issue is John M. Nickles, *Bibliography of North American Geology for 1917* (U. S. Geol. Survey Bull. 684, 1918). Emmanuel de Margerie, translator, *La Face de la Terre. Tables générales de l'Ouvrage* (Paris, Librairie Armand Colin, 1918), forming the last part of Vol. III of Suess' great work in the French translation, is the most complete work extant giving references to the geology of the various countries and continents described in the text.

ECONOMIC GEOLOGY

ADOLPH KNOPF

Petroleum Deposits.—In 1919 few papers of major theoretical interest in economic geology were published, and descriptive articles appeared in

diminished volume. This lessened output is partly an after-effect of the war and partly the result of the increasing diversion of geologists into commercial work. A world-wide search for oil is on, and in this search geologists are taking a leading part. As a consequence, Government surveys and universities are losing many of their stronger men, being unable to compete against the high salaries that commercial organizations are willing to pay. One of the unfortunate results of this state of affairs is that little work of fundamental scientific value in petroleum geology is being done, certainly none commensurate with the great importance of the subject.

One of the few papers of theoretical interest in petroleum geology is that on "The Evaporation and Concentration of Waters Associated with Petroleum and Natural Gas" by R. V. A. Mills and R. C. Wells (U. S. Geol. Survey Bull. 693). They account for the saline waters associated with petroleum and natural gas as the result chiefly of the evaporation of water into gases that have escaped and expanded through natural channels leading away from the reservoir rocks in which the gas, oil, and water were confined.

Theory of Ore Deposits.—A notable event has been the appearance of a second edition of Lindgren's well known treatise on *Mineral Deposits*, the first edition of which was published in 1913 and which was immediately recognized to be foremost exposition of the theory of the science. Although all of the chapters have been revised, those on contact metamorphism and on oxidation and sulphide enrichment have been thoroughly recast and expanded. The treatment of the contact-metamorphic ore deposits is less individualistic than it was in the former edition, and the underlying conception has been broadened to include the possibility that the process of ore deposition has varied considerably in different magmas. In general, however, the volume shows no drastic changes from its predecessor.

Copper Deposits.—Ransome has described the copper deposits of the Ray and Miami districts in Arizona (U.

S. Geol. Survey Prof. Paper 115). The ore bodies of these important districts are of the enriched disseminated type, the type so notably represented by Bingham Canyon in Utah and Ely in Nevada, but the Arizona deposits differ in one important respect from these in that the ore is mineralized schist instead of mineralized monzonite porphyry. Ransome shows that the enrichment by which the primitive ore stuff, the protore, as he terms it, carrying only from 0.5 to one per cent. of copper, was brought to commercial grade carrying 1.5 to two per cent. of copper was related to a Tertiary topography rather than to the present surface. The ancient surface was buried under a flood of dacite lava, and a new cycle, or cycles, of erosion was begun. This rather complex history of the copper deposits leads to the interesting suggestion that enrichment may be cyclic rather than continuous and progressive as it is commonly conceived to be.

The copper deposits of the Yerington district, Nevada, recently described by Knopf (U. S. Geol. Survey Prof. Paper 114) are of contact-metamorphic origin. The special features of broader import on the theories of ore deposition that they illustrate exceptionally well are (1) the long time that intervened between the formation of the ore deposits and the consolidation of the magma on which they were genetically dependent; (2) the great amount of material, chiefly iron and silica, that was added to the invaded sedimentary rocks during this interval, without traces of ore deposition; and (3) the genetic dependence of the contact-metamorphic ore on fault fissures, along which the fractured or brecciated limestone has been metasomatically replaced by garnet, pyroxene, and sulphides.

Gold Deposits.—Stillwell presents the results of an intensive study of the factors that influenced the deposition of the gold in the Bendigo goldfield (Commonwealth of Australia, Advisory Council on Science and Industry, Bull. 8). The gold has been localized in shoots the positions of which were determined by the intersection of the veins, which lie parallel to the enclosing strata, with premin-

eral faults, which break across the strata. These faults served as the main paths for the ascending gold-bearing solutions. As the carbonaceous matter in the slates appears to have favored the precipitation of the gold from these solutions, the solutions must have become progressively poorer in gold as they moved along the veins from the points of entry. As long as carbonaceous matter remained unreplaced at or near the points of entry, gold would continue to be deposited there, and in this way the loci of maximum gold deposition were determined.

Iron Deposits.—In "Iron-Depositing Bacteria and their Geologic Relations" (U. S. Geol. Survey Prof. Paper 113) Harder, as a result of his own experimental work, presents much that is new concerning the iron-precipitating bacteria and in addition gives a valuable critical summary of previous work in this comparatively little known field of research. In general, he found that iron-precipitating organisms occur in all iron-bearing waters, both underground in wells and mines and in surface waters. When, however, the geologic importance of these bacteria is discussed, the reader will at once be struck by the noteworthy fact that whereas no iron-hydroxide precipitating bacterium has yet been isolated from sea water, the enormously valuable sedimentary iron ores, like the Wabana ores of Newfoundland, the Clinton ores of the Appalachian region, the Jurassic ores of England, and the minettes of Lorraine, are all of *marine* origin. This fact indicates clearly a field where more work is needed. On the other hand, various bacteria that deposit iron sulphide have been isolated from sea water, and these are frequently cited as the probable agents in the deposition of pyrite beds that are undoubtedly of marine origin.

MINERALOGY AND PETROGRAPHY

HERBET P. WHITLOCK

Applications of Physical Crystallography.—The work of developing the application of minerals, which during the Great War turned to the

natural channel of the search for and exploitation of "war minerals," has, with the signing of the armistice reverted with an added impetus to the production of ores and the development of mineral products upon a peace basis. Not alone does this problem involve the more obvious economic phase which belongs strictly to the province of economic geology, but with the growing knowledge of the physical properties of crystallized products, it has now developed a marked tendency toward the utilizing of this knowledge along lines of productive industry. We are also now beginning to learn how large a part the hitherto little known science of physical crystallography has played in solving some of the important problems which the Government had to face in direct connection with the late war.

To quote a recently published instance (Edgar T. Wherry and Elliot Q. Adams, *Jour. Wash. Acad. Science*, ix, 396), a certain synthetic dyestuff known as pinaverdol, used to sensitize the silver halide of photographic plates to green and yellow light, was much desired by the Government for producing camouflage-detecting photographs from aircraft. Before the war this substance was produced exclusively in Germany, but enough of it was obtainable in the United States to serve as a basis of comparison. The intricate chemical composition of pinaverdol rendered it impossible to identify the experimental attempts to reproduce it by chemical analysis alone. The crystal habit and optical constants of the type material, however, were carefully worked out and the experimental products compared until the identity of the synthetic material as pinaverdol was established beyond question. One could cite many such examples of research work by the U. S. Bureau of Chemistry which was of material service during the war and which is now being used for the standardization of commercial products of all kinds and for the detection of adulterants. The use of the petrographic microscope along this and similar lines of work raises the question of the domestic supply of these instruments, and the fact is to be much deplored that at present

there seems to be no immediate prospect of their manufacture in this country.

Art Motives in Snow Crystals.—

With the resumption of manufacture upon a peace basis, a growing demand is being felt throughout the United States for American products that will express a distinctly American spirit in new designs. Manufacturers have voiced the opinion that an added impulse to applied art in this period of reconstruction of industry will come with the introduction of art motives that are not only striking but novel. The forms of the inorganic kingdom have as yet played little part in the development of art motives, which up to now have been dependent mainly upon geometric patterns and upon more or less conventionally treated plant and animal forms. Yet it would seem that at least some of the mineral forms could be successfully substituted for those more stiffly geometric design patterns which have been handed down through the centuries as part of our art heritage.

Snow crystals, combining as they do a wonderful symmetry of form with practically inexhaustible variety of six-symmetric outlines, offer a fertile field for the designer. As a basis of art motives, it would seem that the range of uses to which these natural geometric forms could be applied is fairly comprehensive. Many of them suggest designs for cut and engraved glass in a great variety of applications. The stellate types, repeated with their extremities in contact or nearly in contact develop into all-over patterns applicable to book covers, oil cloth, wall paper, or textile designs. Some of the more delicately branching forms are strongly suggestive of jewelry designs, as applied to brooches and pendants, either as settings for stones or enameled. The designer of stained-glass rose windows may find in some of the compound tabular forms inspiration for unique patterns. Lace and drawn work, rosettes in fresco, tail pieces for books and magazines, and medallions for the centers of china plates are some of the other suggested uses which might be made of snow-crystal motives. In fact, the user of geomet-

ric designs in any of the decorative arts could well profit by the consideration of these varied and beautiful combinations of six-sided symmetry turned out of nature's studio. A suggestive article showing how this application of snow-crystal outlines to applied art designs, illustrated by many examples has been published by the author in *Natural History* (xix, 437).

New Minerals.—Several new mineral species have been added to the list during the year. These comprise rare and obscure occurrences which have been identified in the course of exhaustive research studies. *Orvilite* and *oliveiraite*, two new zircon minerals, were discovered in a zircon-bearing rock from Caldas, Minas Gerais, Brazil. *Viridite*, a new hydrated iron silicate in the chlorite series, was found in microscopic crystals associated with the iron silicate ores of Sternberg, Silesia. *Markensite*, another new hydrated silicate, related to thuringite, was found in microscopic amounts in the chloritic iron ore at Goblitzschau, Silesia. *Hoegbomite*, a new rock-forming mineral belonging in the corundum hematite group, was described from the Ruoutevare region, Lapland. *Sobralite*, a new triclinic member of the pyroxene group containing a high percentage of manganese, was found at several places in Sodermanland, Sweden. *Ferrierite*, a new hydrated silicate of the zeolite series, remarkable as the only known zeolite containing magnesium in place of calcium, was found in the basaltic rock of Kamloops Lake, British Columbia. *Chubutite*, a lead oxychloride, alleged to be new, and giving the essential formula $7 \text{ PbO} \cdot \text{PbCl}_2$, was reported from Chubut, Argentina. It is suggested that this mineral is identical with lorettoite (*A. Y. B.*, 1917, 580). *Lebedassite*, a new hydrous silicate of aluminium and magnesium, related to neolite but containing no iron, was found at Lebedassi, in the Parvese Appenines, Northern Italy.

A Mineralogical Classification of Rocks.—In advocating a return to a simplified rock classification, as distinct from the quantitative classification of Cross, Iddings, Pirsson and Washington, Arthur Holmes (*Geol.*

Mag., iv, 115) points to the fact that for the working petrologist the mineral composition of an igneous rock is, in the majority of cases, its most important characteristic. He shows that a distinctly chemical classification, even when founded on normative minerals, demands more and better analyses than can usually be obtained. The suggested classification advocates a natural grouping of rocks, which will not depend essentially upon rock textures, but which, following the principle of Shand's five groups, (*ibid.*, 1913, 508; 1914, 485; 1915, 339), is based upon degree of saturation. The following are the primary divisions of this classification: (1) oversaturated rocks, characterized by quartz; (2) saturated rocks; (3) undersaturated rocks, characterized by olivine; (4) undersaturated rocks, characterized by feldspathoids; and (5) undersaturated rocks, characterized by feldspathoids and olivine.

EARTHQUAKES AND VOLCANOES

HARRY FIELDING REID

Earthquakes.—Only comparatively weak earthquakes have occurred in North America during the year. Calumet, Mich., felt a light shock on Oct. 1, 1918. Several shocks have occurred in the central Mississippi Valley, but all were light. In north-eastern Arkansas shocks were felt on Oct. 13, 1918, and April 8. On Oct. 15, 1918, at 9.30 p. m., a shock originating near the Sunken Country was felt over an area of 8,000–10,000 sq. miles. A shock centering near New Madrid, Mo., was felt over an area of 10,000–15,000 sq. miles, at 8:25 a. m. on May 26; very light shocks were reported in the same neighborhood on May 23, 24, and 28. On Feb. 10 and May 25 shocks were felt in the southwestern corner of Indiana and adjoining parts of Kentucky and Illinois. At 4:21 a. m. on Oct. 4, 1918, a sharp shock occurred near Little Rock, Ark., which was felt over a large part of the state, the shaken area being about 30,000 sq. miles. Light shocks were felt at Wichita, Kan., May 26 and July 26. Western Oklahoma was shaken on Sept. 10 and

11, 1918, and Socorro, N. M., on Jan. 31 and Feb. 1. Flagstaff, Ariz., reports a light shock on May 23. Movements of the Wasatch fault may be indicated by the shocks reported on Nov. 16 and 17, 1918, in northern Utah, and on May 7 in the central part of the state. A fairly strong shock was felt at Corfu, Wash., on Nov. 1, 1918.

Shocks of moderate intensity are reported from Eureka, Cal., on Nov. 20, 1918; from the neighborhood of Susanville on Jan. 1; from Shasta County on Jan. 4 and May 2. Lakeport reported a light shock on Oct. 12, 1918; and sharp shocks occurred in the region just north of San Francisco Bay on Jan. 20 and Feb. 25. A light shock was felt in Berkeley on Aug. 9. Light shocks were felt at Paso Robles on Dec. 4, 1918; at Loan-oak on Feb. 28; at Stanford University on April 13; at Idria on July 31; at San Luis Obispo on March 14 and Aug. 26; at Ojai on Aug. 26; and at Glennville on Aug. 1. Shocks occurred in Owen Valley on Nov. 14, 1918, Feb. 10 and 20, May 10, June 20, 21 and 24. A pretty strong shock originated near Tejon Pass at 7:58 a. m. on Feb. 16; it was felt over an area of about 25,000 sq. miles from San Pedro in the south to Tulare in the north. A somewhat lighter shock on Jan. 25 had nearly the same origin and was felt over an area of about 15,000 sq. miles. San Miguel Island was shaken on Dec. 14, 1918. Shocks were felt at Los Angeles on Sept. 16; at Venice (strong) on Nov. 19; at Pomona on Dec. 14, 1918; at San Diego on June 24; at Squirrel Inn on March 21; at Oak Grove on July 19; and at Hemet on Jan. 7 and March 26. As usual, a number of shocks were felt in the Imperial Valley; they occurred on Sept. 7, Oct. 10 (area shaken, about 10,000 sq. miles), Oct. 14, Nov. 8, 1918; Feb. 18–20 (numerous light shocks), Feb. 27, March 7, 15, 18, and 31, April 19 and May 29.

On Dec. 6, 1918 a rather severe shock occurred near Estavan Point, Vancouver Island; it was strong enough to be felt at points in British Columbia and Washington 200 miles from the origin. The ships of the Pacific Fleet were strongly shaken

when 20 miles off the coast of Colima, Mexico, on Aug. 2, at 4:18 a. m.

The after-shocks of the Porto Rican earthquakes of October-November, 1918 (*A. Y. B.*, 1918, p. 620) gradually died down and seem to have come to an end in the latter part of March. On April 30 and June 27 light shocks were felt at Viequez and Humacao, respectively, but they originated near the eastern part of Porto Rico and were independent of the earlier severe earthquakes. Viequez also reports a light shock on Aug. 30.

The city of San Salvador was destroyed by an earthquake accompanied by an eruption of the San Salvador volcano on June 7, 1917. The city was rebuilt, but it was again destroyed by an earthquake at 12:45 a. m. on April 28, 1919. Nearly all houses were destroyed within a radius of 10-12 miles; beyond this distance no damage was done. No volcanic eruption occurred. The shock was probably not very severe, the great destruction being due to flimsy construction.

Volcanoes.—Mt. Lassen sent out a column of smoke for several hours on

April 9. The lava in Kilauea has been high and has been quite active during the year; it seems to have been especially active in September. At the end of September lava burst from the side of the Hawaiian volcano, Mauna Loa, and flowed in a stream to the sea, where it built out a short cone and heated the water of the ocean to a high temperature.

International Geodetic and Geophysical Union.—In July there was organized at Brussels the International Geodetic and Geophysical Union, with sections on seismology and on vulcanology. The seismological section is expected to take the place of the International Seismological Association organized on the initiative of Germany in 1904. National committees are to be organized in the countries that join the Union, and these committees will encourage researches in their subjects in their respective countries and will designate the delegates to the International Union, which will hold a meeting every three years. (See also *Terrestrial Magnetism*, and *Oceanography*, *infra*.)

TERRESTRIAL MAGNETISM

DANIEL L. HAZARD

International Geodetic and Geophysical Union.—In the organization of the International Geodetic and Geophysical Union at Brussels in July, 1919, provision was made for a section on terrestrial magnetism and electricity. (See also *Earthquakes and Volcanoes*, *supra*, and *Oceanography*, *infra*.)

Observations on Land.—Because of conditions resulting from the war, the field work on terrestrial magnetism in the United States during the year was limited to the occupation of about 50 stations in the eastern part of the country, principally repeat stations, for determining the secular change for immediate use in the preparation of a new edition of the isogonic chart of the United States for 1915. In Canada 55 repeat stations were occupied between Winnipeg and the Pacific Coast.

Observations were made during the year in the following localities by observers of the Department of Ter-

restrial Magnetism of the Carnegie Institution of Washington: Africa, in the interior of Kamerun and the western part of the French Congo; Asia, a few scattered stations; South America, in Chile and Patagonia and eastern Brazil. In coöperation with this Department magnetic observations were made by Captain Amundsen on the coast of Siberia, by Prof. Boris Weinberg in Siberia, and by G. F. Dodwell and Kerr Grant in South Australia. The magnetic observatory of this Department at Watheroo, West Australia, has been in operation since the beginning of the year, and progress has been made in the erection of an observatory at Huayao, about 125 miles east of Lima, Peru.

The new Australian Government observatory at Toolangi, near Melbourne, Australia, has been in operation since Aug. 1, 1919. It is to replace the one at Melbourne, the records of which had become unsatisfac-

tory because of the disturbing effect on the instruments of nearby electric car lines.

Special Investigations.—In order to study further the effect of an eclipse of the sun upon the earth's magnetism the Department of Terrestrial Magnetism of the Carnegie Institution of Washington made observations on May 29, 1919, at Cape Palmas, Liberia; Campo, Kamerun; Sobral, Brazil; Huayao, Peru; Puerto Deseado, Argentina; Watheroo, West Australia; and Washington, D. C.; and secured data for the same period from other magnetic observatories all over the world (see also XXI, *Astronomy*).

Observations at Sea.—The *Carnegie* left Washington, D. C., early in October, after being out of commission for over a year and receiving a thorough overhauling. A three years' cruise has been planned, beginning with work in the South Atlantic, postponed from 1917, and extending subsequently into the Indian and Pacific Oceans.

Publications.—Among the important publications in terrestrial magnetism may be noted the following: "A Magnetic Survey of Japan for the Epoch 1913.0," executed by the Hydrographic Office (Bull. of the Hydrographic Office, Imperial Japanese Navy, Tokyo, 1918); "The Magnetic Resurvey of the British Isles for the Epoch January 1, 1915," by George W. Walker, with an appendix entitled, "Report on Magnetic Disturbances in Northamptonshire and Leicestershire and their Relations to the Geological Structure," by Arthur Hu-

bert Cox (*Philos. Trans.*, Ser. A, Vol. 219); "The Solar and Lunar Diurnal Variations of Terrestrial Magnetism," by S. Chapman (*ibid.*, Vol. 218); "Results of Magnetic Observations made by the U. S. Coast and Geodetic Survey in 1918" (U. S. Coast and Geodetic Survey). The Topographical Surveys Branch of the Department of the Interior of Canada has published three magnetic charts of western Canada for 1917.0. Periodical literature on terrestrial magnetism is reviewed currently in the journal *Terrestrial Magnetism and Atmospheric Electricity*. Among the notable articles in periodicals during the year may be mentioned: L. A. Bauer, H. W. Fisk and S. J. Mauchly, "Results of Magnetic and Electric Observations made during the Solar Eclipse of June 8, 1918," (*Terres. Mag.*, Dec. 1918, March and June, 1919); S. Chapman, "Theories of Magnetic Storms" (*Observatory*, London, May, 1919); J. A. Fleming, "Note on a String Galvanometer for Use on Board Ship," (*Terres. Mag.*, March, 1919); George Hartnell, "The Vertical Intensity Variometer," (*ibid.*, June, 1919); Daniel L. Hazard, "The Relation between Seismic and Magnetic Disturbances" (*Bull. Seis. Soc. of America*, Dec., 1918); E. A. Reeves, "A Transformation of the Magnetic Dip Chart" (*London Geog. Jour.*, March, 1919); Boris Weinberg, "The Secular Variation of Terrestrial Magnetism in Siberia" (*Terres. Mag.*, June, 1919); W. Uljanin, "*Elektrische Methode zur Bestimmung Horizontalintensität des Erdmagnetismus*" (*ibid.*, Sept., 1919).

METEOROLOGY AND CLIMATOLOGY

CHARLES F. BROOKS

General Meteorology.—In response to a demand for a group of papers on "Meteorology as a Subject for Study," the Weather Bureau has published and distributed among several hundred colleges and universities such a collection. The teaching methods used by R. DeC. Ward (Harvard) and by C. F. Brooks (Signal Corps) and W. J. Humphreys' (Weather Bureau) order of presentation are discussed; also recent meteorological books and some recent

advances in meteorology are briefly reviewed and 50 subjects for research mentioned (*Mo. Wea. Rev.*, Dec. 1918). Prof. W. J. Humphreys' "Optics of the Air" and "Factors of Climatic Control" have been published (*Jour. Franklin Inst.*, 1919, 1920), completing his book, *Physics of the Air*, which at the end of the year was being revised and assembled for publication.

Aerological Work; Winds.—A group of papers on aerological work

describes the pilot-balloon methods used by the Weather Bureau, Signal Corps, and Navy for observing winds at various levels (*Mo. Wea. Rev.*, April, 1919). Pilot balloons ascend at a nearly constant rate above the more or less turbulent surface layer of air; thus their positions from minute to minute can be closely determined by angular measurements with only one theodolite in conjunction with the computed ascensional rate. Ingenious plotting boards allow a very rapid reduction of the observations into terms of wind direction and velocity at various levels. The results are charted on a three-dimensional map and applied especially in making forecasts for aviators and in computing the ballistic wind for artillerymen (*ibid.*, April, 1919). At the Army and Navy proving grounds temperatures for computing the density of the air are obtained by daily airplane ascents to a height of 10,000 ft. or more. Elsewhere, as aids in forecasting and for future scientific investigation (cf. V. E. Jakl, "Some Observations on Temperatures and Winds at Moderate Elevations Above the Ground," *ibid.*, 1919), meteorological kite flights are made at six Weather Bureau stations daily when possible (*ibid.*, Aerological Suppls.). The movements of dust smoke, and clouds are useful as well as balloons and kites for determining the winds of the free air. Dustfalls which occasionally occur in the northeastern United States have been traced back to the arid portions of the southern Great Plains (*ibid.*, Nov., 1918). The Minnesota forest-fire smoke in October, 1918, spread over practically the entire eastern half of the United States, (*ibid.*, Nov., 1918; *Geogr. Rev.*, April, 1919). Observations on clouds may be complementary to those on pilot balloons, for the usefulness of pilot balloons decreases as the cloudiness increases. In recognition of the value of close cloud observations the Weather Bureau is providing all regular stations with nephoscopes and publishing a number of papers on the uses and methods of cloud observation (cf. *Mo. Wea. Rev.*, July, Aug., 1919).

Aeronautical Meteorology.—The Weather Bureau issued throughout the

year 1919 daily forecasts for aviators and special ones whenever needed by aircraft. The Weather Bureau took an active part not only in making an initial study of the weather conditions to be encountered in trans-Atlantic flights (*ibid.*, Feb., 1919), but also had a special forecaster, W. R. Gregg, at Trepassey Bay, N. F., in May (*ibid.*, May, 1919) and again on Long Island early in July (*ibid.*, July, Aug., 1919). Daily weather maps of the North Atlantic were published for all the periods when trans-Atlantic flights were being made (*ibid.*, May, June, July, 1919). With the active aid of Signal Corps meteorologists and others information as to "The Effects of Winds and Other Weather Conditions on the Flight of Airplanes" and balloons was collected (*ibid.*, Aug., 1919).

Special Investigations.—During the total solar eclipses of June 8, 1918, and May 29, 1919, the usual falls in temperature and rises in humidity, culminating about 20 minutes after totality, were observed. No "eclipse cyclone," however, was in evidence (*ibid.*, Jan., March, Nov., 1919). C. G. Abbot's solar station maintained by the Smithsonian Institution at Calama, Chile, is telegraphing daily the observed values of the solar constant to the Argentine Weather Bureau, where H. H. Clayton uses them in forecasting temperatures (*ibid.*, 1919, esp. Jan., Aug., Sept.). The markedly warm winter of 1918-19 in the eastern United States (*ibid.*, March, 1919, *Science*, Aug. 15, 1919) following such a cold one has stimulated some discussion as to the causes of such important seasonal departures. The varying strengths of the general circulation of the atmosphere and the effects of ocean temperatures in determining the locations of "grand centers of action" offer some hope as to the ultimate possibility of making seasonal forecasts (*Mo. Wea. Rev.*, Nov., Dec., 1918; *Jour. Roy. Astr. Soc. of Canada*, July-Aug., 1919). New vertical temperature, pressure and density gradients to great heights in high-pressure, neutral and low-pressure areas were worked out by W. J. Humphreys (*Science*, Feb., 14, 21, 1919; *Mo. Wea. Rev.*, March, 1919). H. H. Kimball

has deduced a new formula for temperatures, pressures and densities at various heights and compared the results with averages obtained from observations (*ibid.*, March, 1919). Anemometer comparisons published by A. N. Shaw (*ibid.*, Jan., 1919) provide an excellent summary of present-day instruments which may be used to indicate wind velocities. A new (fourth) edition of the *Smithsonian Meteorological Tables*, thoroughly revised by the Weather Bureau, has been published. Perhaps its most important new feature is the humidity tables by C. F. Marvin, which, though based on a single formula, agree closely with observed values through the whole range of meteorological temperatures. Carl Kinsley found some remarkable changes in the direction from which radio messages were received under differing weather conditions (*ibid.*, July, 1919). W. F. G. Swann has proposed a new theory to account for diurnal changes in the atmospheric potential gradient (*ibid.*). An extended account of the West Indian hurricane of Sept. 6-14, 1919, and its accompanying conditions has been published (*ibid.*, Sept., Oct., 1919).

Agricultural Meteorology.—Under the leadership of J. Warren Smith numerous Weather Bureau station officials have successfully applied humidity data in forecasting minimum temperatures of danger to crops (*ibid.*, Suppl. 18, 1919). J. B. Kincer, after comparing the "vegetative period" (mean temperature above 6° C., 43° F.) with the frostless period in different parts of the country, concludes that protective measures against frost damage may be well worth while in the South but not in the North, (*ibid.*, Feb., 1919). In another article he indicates how the spring plantings of staple crops coincide closely with the arrivals of certain mean temperatures: spring wheat, 37-40° F.; spring oats, 43° F.; early potatoes, 45° F.; corn, 55° F.; cotton, 62° F. He also demonstrates that there is a close relation between spring temperatures and the condition of these crops to certain dates in the early stages of growth (*ibid.*, May, 1919). How alfalfa seed growing is closely dependent on rain-

fall and frost is shown by H. N. Johnson and J. C. Alter (*ibid.*, May, 1919). The excellent crop maps of the United States (*Yearbook*, U. S. Dept. of Agriculture, 1915, 1916, 1917, and *Atlas of Geography of the World's Agriculture* by V. C. Finch and O. E. Baker, 1918) allowed R. DeC. Ward to write an interesting summary of the larger relations of climate and crops in this country (*Quar. Jour. Roy. Meteor. Soc.*, Jan., 1919; reviewed, *Mo. Wea. Rev.*, April, 1919). The climatology of the cotton plant is carefully discussed by O. C. Stine and O. E. Baker in the folio on cotton, *Atlas of American Agriculture* (Pt. V, Sec. A, 1918; reprinted, *Mo. Wea. Rev.*, July, 1919).

Rainfall.—The relation of rainfall to business is discussed by A. W. Douglas in a U. S. Chamber of Commerce bulletin (Feb., 1919). The importance of rainfall in engineering is admirably summarized by R. E. Horton in the *Engineering News-Record*, (March 27, 1919; reprinted *Mo. Wea. Rev.*, May, 1919). "The Measurement of Rainfall and Snow" by Mr. Horton contains a thorough discussion of the methods, errors, and areal applicability of rainfall measurements (*Jour. New Eng. Water Works Assoc.*, 1919; reviewed, *Mo. Wea. Rev.*, May, 1919). As a result of his extensive investigation "Rainfall Interception," Mr. Horton finds that "the percentage of total precipitation loss is . . . about 25 per cent. as an average constant rate for most trees in heavy rains of long duration" (*ibid.*, Sept., 1919). J. B. Kincer published an extensive discussion, with 33 maps and graphs, of the seasonal distribution of precipitation in the United States (*ibid.*). R. DeC. Ward contributed papers on the rainfall and snowfall of the United States with a map of annual snowfall (*Sci. Monthly*, Sept., Nov., 1919; rev. with additions, *Mo. Wea. Rev.*, Sept., Oct., 1919). Other rainfall articles and abstracts on duration, altitude relations, geographic distribution, and forecasting river stages are published in the *Monthly Weather Review* (Nov., 1918, Jan., May, June, July, Sept., 1919). "Uncle Sam's Dampst Corner" (Hawaii) by G. K. Larrison (*ibid.*, May, 1919) presents a rain-

fall record at Mt. Waialeale (altitude, 5,080 ft.) averaging 476 in. a year, which for the short record now extant exceeds that of Cherrapunji, India, heretofore accredited with being the rainiest place known.

Climatology.—A special contribution to statistical climatology by C. F. Marvin, "Normal Temperature (Daily): Are Irregularities in the Annual March of Temperature Persistent?" shows that the annual temperature curves when based on weekly averages may be covered well by curves of one or two harmonics, and that the residuals are due mostly to extreme conditions occurring in a single year of the record. C. F. Talman follows this with "Literature Concerning Supposed Recurrent Irregularities in the Annual March of Temperature" (*ibid.*, Aug., 1919). Numerous local climatologies of the United States have been published as usual. Miss M. M. Welsh of the Weather Bureau Library has prepared an exhaustive annotated bibliography of South American climatology (*ibid.*, Suppl. 17, 1919). Ellsworth Huntington's *World-Power and Evolution* (New Haven, Yale Univ. Press, 1919) points out the influence of climate on the evolution of men and nations.

Cooperation.—In July a section of meteorology was organized in the International Geodetic and Geophysical Union (see *Earthquakes and Volcanoes, supra*). An index of progress in American meteorology and climatology was the organization at the end of the year of the American Meteorological Society, bringing together for coöperation in advancing meteorology and its manifold applications some 500 professional and amateur meteorologists. The officers for 1920 are: president, R. DeC Ward; vice-president, W. J. Humphreys; secretary, C. F. Brooks; treasurer, R. E. Horton.

Bibliography.—Aside from the specific references given above, current bibliographies of publications received by the Weather Bureau Library and of American and foreign current meteorological and seismological literature are published each month in the *Monthly Weather Review*. The *Review*, in addition to contributions and the regular monthly weather summary, contains notes, reprints, reviews, and abstracts of current matters of meteorological interest published elsewhere. Notes on meteorological or climatological papers are also published in *Science* and the *Geographical Review*.

GEOGRAPHY

PHYSICAL GEOGRAPHY OF LAND AREAS

W. W. ATWOOD

Physiography as an Applied Science.—The movement in the study of physical geography reflects a strong tendency to make this science more useful. During the past three or four decades the principles of physiography have been for the most part worked out very nicely. The time has arrived when the scientific interpretation of the present relief of the earth may be made useful in other studies. The Great War, in its influence upon all scientific works, has called upon the trained geographer to serve in the interpretation of topography from a military standpoint. Several books have been reviewed in earlier issues of the *YEAR BOOK* (A. Y. B., 1917, p. 586; 1918,

p. 634) that bore directly upon the importance of relief in military maneuvers. The importance of physical geography in the study of secondary changes in the enrichment of ore bodies has been attracting and continues to attract more and more attention. The evolution of a land surface bears an important relationship to the circulation of ground waters, and the full working out of this application of the science of physiography should prove to be of notable economic importance to mining men. The science of zoölogy has now an important branch dealing with the great groups of animals or fauna that inhabit certain regions. So also the science of botany treats of the ecology of plants, which is in some ways like the sociology of plants. These studies in plant and animal life that deal with living things in groups depend largely upon

an intelligent appreciation of the physical conditions of the habitat under consideration. Men who are planning to enter the profession of landscape architecture and others who expect to follow scientific forestry as a profession receive a training in the scientific study of the evolution of the landscape. Almost all geologists find it absolutely essential to use the principles of physiography in the interpretation of the later chapters of geologic history. The prediction is probably correct that the movement in this field of learning will continue to be along lines which will make this science more valuable to man. The day for making physiography an applied science has arrived.

Shore Processes and Shoreline Development.—D. W. Johnson's book under this title is the most notable contribution made to the science of physiography during the year. After analyzing the origin and work of waves and, in a similar way, the origin and work of shoreline currents, the author turns to the terminology and classification of shores and embodies therein the results of several years of field study. There has not been an agreement among physiographers as to what features are normally characteristic of a stable coast and what features are peculiar to coasts that are rising or subsiding. There has never appeared before a full, systematic discussion of the cycle of shoreline development. In an erosion cycle of any kind a land mass will in time be worn down to a smooth surface, providing the process of erosion is not interrupted. The term "peneplain" is in common use for a surface which is almost a plane and due to the work of running water. The suggestion is made that we may also have marine peneplains, æolian peneplains, and glacial peneplains. The term "monadnock," which has been defined as "an erosion remnant left standing above a peneplain made by running water," may then be subdivided, and there may be monadnocks due to the incomplete reduction or the incomplete development of a marine plain or an æolian plain.

In the analysis of shorelines, those due to submergence are distinguished from those due to emergence, and there are neutral shorelines and compound

shorelines. The evolution of each type of shoreline is followed with great detail. The author uses the term "tombolo," which was earlier used by Gulliver in the description of shorelines. This term, not yet in general use, is given to a connecting bar, such as one that joins an island to the mainland. There are excellent examples of this type of bar in the vicinity of Boston Harbor. Marblehead Neck is joined to the mainland by a single tombolo, and Nahant is a land-tied island with a similar sand and gravel bar which forms the connection. In the closing chapter many minor shore forms, such as beach cusps, ripple marks, rill marks, swash marks, sand domes, etc., are treated. The bibliographic material is exceedingly ample; the volume is remarkably well illustrated.

The Building of Mountains.—In a series of articles which appeared in the *Journal of Geology* during the year R. T. Chamberlin has reported studies based upon careful field measurements in the Rocky Mountains of Colorado and made some significant comparisons with similar studies carried out by him in the Appalachian Mountains west of Harrisburg several years ago. The building of great mountain ranges is one of the large problems in the explanation of the physical geography of the earth's surface. Chamberlin measured the thickness of the formations in a section in Colorado which extended from the western margin of the Great Plains to the Uinta Basin, and plotted the geologic structure so accurately that he has been able to estimate the amount of shortening that took place along that line when the mountains of that region were formed. Similar measurements and structural studies led to an estimate of the amount of shortening that took place in making the Appalachian Mountains of Pennsylvania. The following conclusions drawn by Dr. Chamberlin from the study of these two regions are of special significance to all students of the surface features of the earth:

1. They [the Colorado Rockies] have suffered, in the first place, much less horizontal compression. From the Great Plains to the Uinta Basin, 140 miles of country were compressed into 132 miles, thus involving a shortening of only eight miles, while west of Harrisburg alone 81

miles of strata were squeezed into 66 miles of present Appalachians, which means a shortening of 15 miles in this much narrower belt. This does not include the folding in the metamorphic belt east of Harrisburg.

2. A much thicker shell seems to have been involved in the Rocky Mountain diastrophism than was actively deformed in the Appalachian folding. The apex of the Pennsylvania Appalachian wedge was but 32 miles below the surface, while the roots of the Gore Range reached a depth of 87 miles and the plateau tract near Glenwood Springs had a depth of 107 miles.

3. Vertical lifting and plateau-forming movements have been more pronounced in the Rockies than in the Appalachians. This is indicated both by the outcome of this analysis, and also by the present high altitude of the Colorado Front Range peneplain, though the elevation of the latter, to be sure, came long after the principal folding, which is the basis of this investigation.

4. The formation of the Colorado Rockies was accompanied by much more vulcanism than the formation of the Appalachians.

This study leads to a prediction as to the thickness of the shell that was involved in the making of other great mountain ranges of the earth. It would appear reasonably safe to hold that the Jura, Alps, Scottish Highlands, and Scandinavian chain are all mountains where there has been a great amount of shortening and intense horizontal thrusting limited to a rather thin shell. The mountains that were formed by the deformation of a thicker shell where the movements affected the earth to such a depth as to cause vulcanism are illustrated by the Cascades, the great Andes, particularly the western Andes, and the Abyssinian mountains.

Coral Reefs.—In the *Transactions of the New Zealand Institute* (li, 1919) W. M. Davis has presented a careful and thorough analysis of the problems associated with the study of coral reefs. He has analyzed the characteristics of coasts of emergence and submergence and has considered the various possibilities of partly emerged coasts of submergence and partly submerged coasts of emergence, which have undoubtedly been overlooked by less careful observers in the study of shorelines. In the study of the origin of the circular reefs or atolls there is a particularly difficult problem, for there is no land mass associated with such

a coral reef to carry the marks of emergence or submergence during recent geologic times. The study of fringing and barrier reefs, as is clearly pointed out by the author, should be associated with the study of the neighboring land bodies. The great physiographic changes which they have undergone, either through emergence or submergence, must have affected the growth of corals along the bordering shores and therefore the extent of reef building.

The failure of many who have investigated coral reefs to apply the principles of physiography has been due partly to the fact that they were chiefly interested in the biological side of the study. Some have not been trained to use physiographic methods in their field of investigation. The coral reefs of the Pacific will continue to attract special attention from students of geology, physiography, and biology, and the thorough study of this interesting problem offers great possibilities for important contributions bearing upon the differential movements of the floor of the Pacific Ocean. (See also *Dynamical and Structural Geology*, *supra*.)

Topography of Camp Devens.—A description of the topography and general geography of the region in and about Camp Devens, Massachusetts, prepared by the present writer, appears on the back of the topographic map of the region which was published by the U. S. Geological Survey.

Geography of France.—Raoul Blanchard and Millicent Todd's *Geography of France* has a new and double interest. First, it introduces the student to the French school of regional geography. That school is not concerned with boundaries, lists of rivers, mountains, plains and cities, nor is its text confined to information about natural resources, raw materials and finished products. Neither is mere accurate description its only concern. All these things are but incidental to the presentation of a given region as a living whole, a region distinguishable from its neighbors by relief, soil, climate, or other physical features, yet a region sufficiently restricted so that all its aspects can be

studied in detail. The conditions of human life dependent upon nature are taken up, and man's adaptation to them, human activities, are explained in the light of natural conditions.

Aerial Exploration in Morocco.—“From Meknès to the Headwaters of the Moulouya” (*Ann. de Géographie*, July, 1919) by Jules Blache, is a report of aerial explorations by a trained geographer who during the war had the opportunity of making extensive flights over the region south of Fèz, Morocco. His report indicates that there are great possibilities for geographical exploration by airplanes. The territory described is divided into three parts. At the north is the region of the Middle Atlas Mountains. This is in part a volcanic plateau. There are widespread flows of basalt and circular craters which show no signs of erosion. The extreme youth of this portion of the Atlas region is thus emphasized. Another portion of the Middle Atlas Mountains consists of great layers of limestone that have been slightly folded. Here the topographic features conform closely to structure. No traces of subterranean waterwork were noted. In the more open valleys of the dissected plateau the lands are suitable for cultivation. The next natural region, lying south of the Middle Atlas, is the plain of the Moulouya. This is a structural depression among very ancient folded rocks. A thin covering of alluvium washed from the neighboring higher lands mantles the floor of this depression. The climate is arid, the streams intermittent in their flow, and the region is used chiefly as a pasture land. South of the Moulouya are the Great Atlas Mountains, rising to an elevation of 3,750 m. This is a monotonous, bare, and infertile region, grand only because of its size and solitude. The ice fields here are a great reserve of water, and the streams throughout the region are extremely youthful. This mountainous region is occupied by wild Berber tribes. Blache's paper is another excellent illustration of the regional treatment of geography which has been so generally adopted by French geographers.

OCEANOGRAPHY

G. W. LITTLEHALES

International Geodetic and Geophysical Union.—The International Association of Academies having become defunct on account of the war, accredited delegates met in Brussels on July 18, 1919, to reconstitute international scientific relations by the organization of the International Research Council (see XXIII, *Physics*) and at the same time to reconstitute and centralize as international unions under the International Research Council those international scientific organizations whose terms of existence expired during the war or whose previously existing arrangements were regarded as having terminated on account of the war. Among the international unions organized under the International Research Council is the International Geodetic and Geophysical Union, within whose fields of science oceanography is included by specific provision. (See also *Earthquakes and Volcanoes*, *supra*.)

International Hydrographic Conference.—In the interests of that branch of oceanography known as marine hydrography, which comprehends the conduct of surveys for the production of sea charts and kindred nautical publications, an International Hydrographic Conference was held in London from June 24 to July 17, 1919. One of the aims of the Conference, which was successfully promoted, was to secure uniformity of practice among the nations in the use of those expressions and conventions by which information is set forth in nautical publications. The marine hydrographic labors of the various maritime nations are undertaken for the benefit of commerce and navigation and serve to safeguard the lives of seamen and to promote the security of shipping. It is natural, therefore, that hydrography should be of international concern and that the deliberations of this Conference should have led to a resolution recommending the establishment of an International Hydrographic Bureau to advise the various national hydrographic offices as to measures of coordination in their labors for the general benefit of navigation.

In this connection it may be appropriate to notice the American contributions of recent years resulting from the energetic prosecution of surveys by the Navy in the West Indies and Central America and by the U. S. Coast and Geodetic Survey in the Philippine Islands, and to mention the continually increasing participation of the Hydrographic Office, whose completed nautical charts, extending to all parts of the world, now number upwards of 3,000 and are accompanied by 47 volumes of sailing directions.

Projected Exploration of the North Pacific Ocean.—During the meeting of the Pacific Division of the American Association for the Advancement of Science at Pasadena, Cal., in June, 1919, a symposium was held to represent the vital interests of America in the scientific investigation of the North Pacific Ocean and the tangible benefits which greater knowledge of the ocean will bring in harvesting its resources, in rendering all travel over it more certain and more safe, and in bringing under control those aspects of the land's productiveness which are largely influenced by the conditions of the sea.

Detection of Ocean Currents.—It is a desideratum of importance in navigation to be enabled to interpret from actual circumstances the direction in which a vessel will probably be deflected from a given course by ocean currents. A method of procedure for this purpose was proposed by Alfred G. Mayor before the American Philosophical Society in April, 1919. Ocean currents moving from warm into cold regions are relatively alkaline, and their surface waters absorb CO_2 from the atmosphere so slowly that they remain more alkaline than one would expect from their temperature. Conversely, cold currents moving into warmer regions retain their relative acidity and part with their CO_2 at so slow a rate that they become warmer than would be expected from their low alkalinity. In tropical regions of the Pacific the surface currents sometimes observed setting toward the eastward, against the prevailing westerly drift, are relatively acid and contain more CO_2 than we would expect from their temperature. The hydrogen-ion concen-

tration of sea water can so easily be detected by using such an indicator as thymolsulphonaphthalein that the method may prove of service to navigation in detecting the presence of counter currents before the ship has been deflected from its course.

International Ice Patrol.—The employment of the steamers of the Coast Guard in the international patrol for the safety of navigation and in the collection of oceanographical observations in the ice fields off the Grand Bank of Newfoundland (A. Y. B., 1914, 1915, 1916, 1917) was resumed in April, 1919, after an interruption since 1916 owing to the exigencies of the war. During the months of April, May, and June 72 stations were occupied, at which observations of temperature, density, and salinity were made from the surface to the bottom, or to 600 m. Several hydrographical sections were made across the Labrador Current and into the Gulf Stream. Data were obtained at the southern end of the Grand Bank, where the Labrador Current meets the Gulf Stream, which show the peculiar overlapping of these waters. A new submerged-bobbin method of measuring the salinity was used successfully, and investigations were undertaken to perfect a method of determining the saline content by measurement of the electrical conductivity of the sea water.

CARTOGRAPHY

W. L. G. JOERG

Peace Treaty Maps.—The outstanding cartographic publication of the year is the set of official maps embodying the territorial provisions of the Peace Treaty with Germany. They accompany the official text published in Paris in French and English under the title of "Treaty of Peace Between the Allied and Associated Powers and Germany and Protocol Signed at Versailles, June 28, 1919." There are four maps, one a general map of Germany showing the new boundaries, 1:1,000,000, and three detailed maps showing respectively the territory of the Sarre Basin, 1:100,000, the Danzig area, 1:100,000, and the Slesvig plebiscite areas, 1:200,000. In view of the importance

and relative inaccessibility of these maps a few words as to their physical appearance may not be amiss. The map of Germany, which is 40 by 50 in. in size, is sufficiently detailed to show all the places and other geographical features referred to in the text. These elements are overprinted in red (the boundary being reinforced by a lavender band) on a stock map of Germany showing drainage in blue, relief in brown contours of 100-m. interval, railroads and nomenclature in black. The map bears the imprint of the Service Géographique de l'Armée and is dated June 23, 1919. Distinction is made between the portions of the new boundary which do and which do not require to be delimited on the ground, and the plebiscite areas are shown. The three detailed maps show the respective boundaries in color overprinted on a photo-lithographic reproduction in gray of the relevant sheets of the standard topographic map of Germany in 1:100,000. The same four maps accompany, it would seem, the British edition of the peace treaty, which was issued as a blue book designated Treaty Series No. 4 (1919). The American edition (Senate Doc. No. 49, 66th Congr, 1st Sess.) lacks the maps.

The new boundaries of Austria are shown in detail on a map on the scale of 1:1,500,000 in the December, 1919, *Geographical Review*, according to Arts. 27 and 49 of the text of the treaty as published in the *Congressional Record* for Sept. 15, 1919 (pp. 5732-5779). A similar map on the same scale, but rather carelessly drawn, appears in the *Geographical Journal* for November, 1919.

None of the other new boundaries resulting from the war can as yet be shown, inasmuch as the treaties defining them have not been formulated. Nevertheless, the trend of the remaining decisions can best be gathered from a map, 1:20,000,000, published by the American Geographical Society for the Committee on Public Information, showing the boundaries of the new states of Europe as recommended to the Supreme Council by the experts at the peace conference. A map privately published by Mark Jefferson, chief of the Division of Geog-

raphy of the American Commission at the Peace Conference, and entitled "The Prospective Countries of Europe, 1919," 1: 15,000,000, is based on the same sources of information.

Military Surveys and Photo-Aerial Mapping.—In spite of the existence of large-scale topographic maps covering practically every country in Europe, it became evident soon after the war began that in the "war of position" that had replaced the "war of movement" even these maps did not suffice. To meet this need on the western front the British and French war offices each issued a series of maps on the scale of 1:20,000, the former, of over 300 sheets, covering the entire western front, and the latter, of some 80 sheets, covering the British area of operations. On these topography is shown in as great detail as permitted by the scale, including relief in contours of five-meter interval, but the main feature represented is the trench system, both enemy and Allied, in all its intricate detail. In the preparation of these maps some existing large-scale maps were utilized, such as the French *Plans directeurs*, 1:20,000, of the fortress areas, the unpublished cadastral maps, 1:2,500, of the early nineteenth century, and the current Belgian topographic sheets, 1:20,000, but otherwise the country had to be surveyed anew. In this the major contribution was made by the new method of photographic mapping from airplanes. Accounts of this, one of the most important developments of war aviation, are only beginning to become available. References are: M. N. MacLeod, "Mapping from Air Photographs" (*Geogr. Jour.*, June, 1919), with two maps of the same area on the same scale from a German pre-war topographic sheet and from an air photograph; "Map Making from the Sky" (*Sci. Am. Suppl.*, Dec. 14, 1918); "Mapping from the Air" (*U. S. Geol. Survey Press Bull.* 410, June, 1919); E. Lester Jones, "Surveying and Mapping from Airplanes" (*Sci. Am. Suppl.*, June 21, 1919, and *Flying*, June, 1919); "Airplane Mapping by the United States Army" (*Sci. Am. Suppl.*, Oct. 11, 1919). On mapping on the western front see: H. S. L. Winterbotham,

"British Survey on the Western Front" (*Geogr. Jour.*, April, 1919) and "Geographical Work with the Army in France" (*ibid.*, July, 1919). Interesting glimpses of the enemy's activities are given in A. R. Hinks, "German War Maps and Survey" (*ibid.*, Jan., 1919), and of work in the Balkans in Hubert Ginzl, "*Aufgaben und Tätigkeit der Kriegsmappierung auf der Balkanhalbinsel*" (*Mitt. geogr. Gesell. Wien*, Oct., 1918).

Atlas of Poland.—One of the increasing number of atlases dealing intensively with a single country or region (Finland, Scotland, Canada, Asiatic Russia are already represented) is the important *Atlas de la Pologne: Géographie et Statistique* by Eugene Romer, professor of geography in the University of Lwów. It consists of 68 maps on 32 plates, with accompanying text in Polish, French, and German. The main maps are on the scale of 1:5,000,000 and cover the area of Polish speech and cultural predominance. The features represented include relief, geology, climate, vegetation, history, administration, population density and growth, ethnography and languages, religion, education, land tenure, agriculture, animal husbandry, mineral resources, industries, communications.

Ethnographic Maps.—Among the year's flood of ethnographic maps, good, bad, and indifferent, may be mentioned three, because of their relatively large scale and their authoritativeness. The "Ethnographic Map of the Frontier Zone of Northern Italy" by Olinto Marinelli (*Geogr. Rev.*, March, 1919), 1:1,500,000, is one of the few racial maps to show in detail the Franco-Italian contact zone in addition to the more commonly portrayed German-Italian and Slav-Italian zones. The other two are published by the Geographical Section of the British General Staff, London: the

first, of central and southeastern Europe between lats. 56° and 40° N. and longs. 6° and 30° E., in 1:1,500,000, on a reduced base of its standard map of Europe and the Near East (A. Y. B., 1918, p. 637); and the second, of eastern Turkey in Asia, Syria, and western Persia, 1:2,000,000 (42°–29° N.; 33°–50° E.), on the Royal Geographical Society's map of that title as a base.

Map of Africa, 1:2,000,000.—Akin to the map of Europe and the Near East, 1:1,000,000, is a new and important map of Africa in 1:2,000,000, likewise "compiled at the Royal Geographical Society under the direction of the Geographical Section, General Staff" (*cf.* article by A. R. Hinks in *Geogr. Jour.*, Oct., 1918). The map will comprise 25 sheets, each sheet covering the same area as four sheets of the International Map of the World, 1:1,000,000 (A. Y. B., 1915, p. 607), of which only a few African sheets have been published. With characteristic energy and promptness 11 sheets have already appeared, practically covering tropical and south-central Africa. Drainage is in blue, relief in brown contours at 200, 500, 1000, 1500 m., etc., and railroads are in black.

Survey of the Rio Negro.—A valuable survey of the Rio Negro, the main left tributary of the Amazon, carried out by A. Hamilton Rice in 1917, was published in 1:750,000 in the *Geographical Journal* for October, 1918. This is the first really satisfactory survey of the river, superseding the good, but less detailed, survey by H. A. Coudreau in 1884 (map in 1:2,500,000). Dr. Rice's map is based on compass traverses and determinations of distance by patent log and time, adjusted by astronomical observations for latitude and chronometric determinations of longitude, checked by wireless signals exchanged with Arlington, Va.

EXPLORATION AND GEOGRAPHICAL RESEARCH

CYRUS C. ADAMS

Effect of the War on Geographical Research.—The year 1919 has given us a smaller measure of geographical exploration and of enterprises relating to the development of the newer

countries than any similar period for years past. Still, some results of much geographical importance came into view. In Mesopotamia, for example, it was found during the long

campaigns that much geographical study and map revision were necessary for the intelligent conduct of the war in that region. The large work to this end, carried out in the field studies of the British Topographic Service, is a permanent addition to our knowledge of a practically unsurveyed part of the world. Sir Thomas H. Holdich, president of the Royal Geographical Society, said in his annual address (*Geogr. Jour.*, July, 1919) that "the best forms of mapping that had been made to serve the purposes of civil life were not sufficiently exact and detailed to meet the needs of great military campaigns." It came as a surprise to find that many German maps which fell into the hands of the Allies did not, on the whole, meet a high standard of accuracy. In the opinion of Sir Thomas, "what has been learned during the war will tend to increase the accuracy of maps after it."

The leaders in geographical enterprise believe that a widespread renewal of earth study and research will almost immediately begin. They say that the study of the distribution and resources of all kinds of natural wealth and of methods by which many of them may be utilized and conserved will have greater prominence than ever before. With the large annual increase in the world's population we need more exact knowledge of the possibilities of production in every field that may be made to yield one or many things that are useful to man.

Polar Exploration.—In his last five years of Arctic work on land and sea Vilhjálmur Stefánsson established his theory that he needed to carry no food or fuel but merely the equipment for securing them. When sledging over the sea ice, he found seals enough for his needs and more seals the farther north he went. Seals gave his ice-sledging party about 75 per cent. of their food to the north of Alaska and all of it in the area west and north of Prince Patrick Island. By careful shooting and by never shooting anything smaller than a wolf he was able to average 125 lb. of meat, live weight, for every cartridge. By the system of living off the country Stefánsson feels certain that an exploratory journey of

several years may be made, with only the necessity in view of stopping somewhere in summer to put up enough meat and blubber to last the following winter. Four men of his party and three Eskimo families demonstrated in 1916-17 that they could live safely through the winter on an uninhabited island. They dried the meat of 30 seals and over 90 musk oxen and secured enough skins for the women to make into clothing for winter use and also sufficient tallow and blubber for fuel. As they fortunately found good coal on the island, they turned some galvanized iron cans into stoves which warmed the houses they made of musk-ox skin. If they had not found this coal, they would have had to build smaller snow houses lined with skins and to burn seal oil for heating.

In recognition of his Arctic explorations Stefánsson has received the Charles P. Daly Medal of the American Geographical Society, the Hubbard Gold Medal of the National Geographic Society of Washington, the Elisha Kent Kane Medal of the Geographical Society of Philadelphia, the Helen Culver Gold Medal of the Geographic Society of Chicago, and the Gold Medal of the Explorers' Club of New York.

Prof. R. DeC. Ward, of Harvard University regards as one of the most important scientific results of Antarctic research the meteorological data of the Amundsen expedition as prepared for publication by H. Mohn. At Framheim, Amundsen's camp on the sea ice, thus far the most southern meteorological station in the world, the lowest mean annual temperature thus far recorded anywhere was obtained (-11.2° F.). No temperatures above zero Centigrade were recorded. The prevailing winds are from the east and seem to be chiefly incurving cyclonic winds from the sea. Framheim has no such gales as those reported for the coast of Wilkes Land, where the wind velocity averaged nearly 50 miles an hour for the year. That locality seems to be the windiest region in the world. At Framheim the maximum wind velocity was 45 miles an hour. There was no rain, and snow fell only about every fifth day. Between latitudes 79° and 83°

S. the wind pressure increases with latitude; then it is constant to lat. 86° ; it then decreases rather rapidly and, at last, more slowly to the South Pole.

Alaska.—Ernest de K. Leffingwell has thus far given nine summers and six winters to travel and study along the coasts and in the interior of northern Alaska. The U. S. Geological Survey has recently published his report on "The Canning River Region, Northern Alaska." The river is in the northeastern part of the territory about a third of the way between the international boundary and Point Barrow. The southern and upper part of the river valley lies in the Endicott Mountains, the lofty, rugged heights of which rise to snow-covered peaks 9,000 ft. high. Leffingwell found many large streams rising in these mountains and flowing through gaps in the lower ridges that extend east and west parallel with the Endicott range. The ridges disappear at 20 to 50 miles south of the coast, and the country slopes gently to the sea through a flat plain dotted with shallow ponds and lakes. The streams traverse this plain slowly and in cuts so shallow that here and there their existence is not suspected at a distance of a half-mile.

Greenland.—Knud Rasmussen, who has in recent years won distinction in Greenland research, led a small party in April, 1917, from northwest Greenland eastward along the heads of the fiords extending north. The scientific members of the party were Thorild Wulff, botanist and ethnologist, and Lauge Koch, geologist and cartographer. The party made good progress until they reached St. George's Fiord in lat. 82° N. They had traveled from the west coast more than half the way to the east coast and thus far had met with very good success, though the weather was severe. Then they advanced about 60 miles north to Delong Fiord but failed to find any game to add to their food supply. At the outset of their return journey one of their Eskimo hunters was killed by wolves while on a hunting trip. The journey towards camp was very arduous. One by one the dogs were killed and eaten, the last one near Humboldt Glacier on the

west coast, about 150 miles northeast of the camp. All the men were weak and starving. They found neither hare nor caribou. Dr. Wulff soon became too weak to go farther. He wrote brief letters to his family, dictated to Koch a summary of his observations of the flora south of Humboldt Glacier, bade his comrades farewell, and resigned himself to his fate. He had accomplished a splendid piece of work both in botany and zoology. Koch also worked hard and with fine results. He mapped the whole coast along which the party traveled, much of which had been only roughly outlined. He discovered several new fiords and collected Silurian and Cambrian fossils far north. When last heard from he had not yet fully recovered from his privations and exhaustion.

That summer was very severe throughout North Greenland. There was much snow, severe cold, and cloudy weather. Hunting was poor, and the natives made only small kills of the seal and white whales which are their chief resource. The natives of South Greenland suffer the additional disadvantages of being in trouble if their ammunition falls low, for they have forgotten the ways in which their fathers hunted.

Spitsbergen.—The Arctic archipelago of Spitsbergen has passed through several stages of usefulness. Hendrick Hudson discovered whales in its waters in the seventeenth century and the profits made there in ivory, whalebone, and oil long kept the islands in view. The era of fur trapping followed, and this industry, most energetically pursued, nearly resulted in the extermination of all fur-bearing animals. Coal mining in the archipelago is a quite recent development. In the opinion of R. N. Rudmose Brown (*Geogr. Rev.*, May, 1919), this industry will have an important future, with the British likely to lead in its development. The Arctic Coal Co. of Boston exported 40,000 tons in 1912, and its coal lands had been well prospected and found to be extensive and valuable. But two years after the outbreak of the European War the American company sold all its lands to Norwegian buyers and retired from Spitsbergen. The Amer-

icans had shown what could be done in the country and led the way in successful commercial development. British companies at present control 4,000 sq. miles of coal lands; Norwegian, 900 sq. miles; Swedish, 350 sq. miles; and Russian, 100 sq. miles. The British claims are not only the largest, but also embrace all the good harbors and contain, besides coal, iron ore, lead ore, asbestos, gypsum, and oil shale. Notwithstanding the high latitudes of Spitsbergen, mining is carried on under favorable conditions. The winter is cold but calm and is compared favorably with winter on our Atlantic seaboard. Under present conditions of hygiene and diet there is no fear of scurvy, and other diseases are practically unknown; but law and order are not yet well maintained, property is not safe from marauders, and the waning herds of reindeer are at the mercy of any one with firearms. Some system of government must be imposed to assure the safety of the men engaged in development work.

At a meeting of the Royal Geographical Society in London Sir Martin Conway read a paper on the political status of Spitsbergen, in which he said that both Dutch and English claimed Spitsbergen by right of prior discovery (*Geogr. Jour.*, Feb., 1919). Sir Thomas H. Holdich, president of the society, said that Sir Martin Conway had made out a very good case for Great Britain, but he himself was not so optimistic as to believe that the last word had been spoken as regards the claims of Norway. That country was much nearer Spitsbergen than any other land. He thought the question of Spitsbergen would come up to be settled by the League of Nations.

Russia.—In spite of the terrible afflictions that Russia and Siberia have undergone, the Russian Geographical Society has already begun the preparation of a second enlarged edition of the *Geographical Gazetteer* with maps and bibliographies. All the funds needed for the work have been obtained. General Shokalsky is editing the results of the Polar expedition of 1910-15 (*A. Y. B.*, 1915, p. 610) in the course of which the new islands off Cape Chelyuskin were discovered.

Mount Everest.—The *Geographical Journal* (May, 1919) says that when geographical research is renewed, it is probable that as the Poles have now been reached, one of the important tasks will be the exploration and mapping of Mt. Everest, in the Himalayas, with its complex of ridges and valleys. Major J. B. Noel, whose party did not succeed in reaching the mountain through Nepal, which is the shortest route, on account of political difficulties, says that the only approach lies through Sikkim, taking in Mt. Everest from the east. A photographic survey in airplane is also possible, because a direct flight and return could be made from the plains of India without the need of landing in the mountains. The difficulty of landing urged against the airplane does not apply in the case of Mt. Everest because the mountain is not far from the plains. A greater difficulty is found in the high winds of Tibet. Major Noel describes what, in his opinion, are the best eastern and some other approaches to Mt. Everest. The maps upon which the hopes and plans of his party had been based were incorrect, and so he was defeated in his effort to attain the mountain. But he caught a good view of Everest, "a glittering spire of rock fluted with snow."

Morocco under the French.—A paper written by the editor of *France-Maroc* for the *Geographical Review* (July, 1919) gives an authoritative and very interesting account of the progress Morocco is making under the patient tutelage of the French. The old days of fanaticism and stagnation are passing away, and the French, with great tact, have won the confidence of the Moroccans and have much improved parts of the country and the condition of the people.

The new Morocco is really the creation of General Lyautey, who was appointed Resident-General in 1912. For seven years France has exercised the right she acquired to treat a very large part of Morocco as within her sphere of influence as determined by previous agreement with Spain. The area over which the French sphere of influence now extends embraces 250,000 sq. km. The utmost care is

taken to avoid complications with the Moroccan Government. The administration of the country is still preserved in its original form. The Sultan governs with the aid of his ministers, and France provides a civil list adequate for the support of the Government.

But although the French protectorate has preserved the original form and apparatus of the Government, new departments have been created to forward the development of the country. They include the Departments of Public Works, Public Lands, and Finance and a Postal Service. Competent men are appointed to advise with the native heads of the various departments of the Government as to the best way to meet each problem, and special efforts are made to encourage industrial and commercial development. The future now seems bright for a country that has long been the most fanatical and unprogressive in North Africa.

To avoid dissipation of effort and resources, it was decided to have only one major port and several secondary ports. Casablanca was chosen as major port, several others as secondary ports and the improvement of these harbors is in progress. Under the energetic and tactful influence of France there is every reason to believe that Morocco will become one of the most important countries of Africa. J. Whelpley, in his recent book *Trade of the World*, quotes an authority as saying that there is nothing in the northern half of Africa that will compare with the wealth and productiveness of Morocco. Her forests and mines are intact. Eight million or more people, living in primitive style, have never more than scratched the surface with their crude wooden plows. It is a soil that will yield three crops a year, and there are warm winds and sunshine for 300 days a year. It is estimated that the country has 300,000 sq. miles of fertile farm and grazing lands.

Bibliography.—The period of the war, and especially the last two years of it, saw the publication of comparatively few books on geographical topics. Some of the leading geographical periodicals even suspended their departments of book notices.

Below is a selected list of books that have attracted considerable attention in the past two years or so:

America

- BOERKER, Richard H. Douai.—*Our National Forests*. (New York, Macmillan, 1918.)—A short account of the work of the U. S. Forest Service.
- EDWARDS, Agnes.—*Cape Cod*. (Boston, Houghton, Mifflin.)
- LONGSTRETH, T. Morris.—*The Catskills*. (New York, Century, 1918.)
- MUIR, John.—*Steep Trails*. (Boston, Houghton, Mifflin, 1918.)—A fine selection from his writings ranging from Utah to Puget Sound and ending with his description of the Grand Cañon.
- SCHOENRICH, Otto.—*Santo Domingo*. (New York, Macmillan, 1918.)—Now the standard work in English on that country.
- SKELTON, Oscar D.—*Canada, The Railway Builders*. (Toronto, Glasgow, Brook & Co., 1916.)
- YARD, Robert Sterling.—*The Book of the National Parks*. (New York, Scribner, 1919.)—The author is the Chief of the Educational Division of the National Park Service.

Europe

- BUTLER, Frank H.—*Through Lapland with Skis and Reindeer*. (London, T. Fisher Unwin, 1917.)
- GREEN, Neal.—*Fisheries of the North Sea*. (London, Methuen & Co., 1918.)

Africa

- BALTZER, Von F.—*Die Kolonialbahnen mit besonderer Berücksichtigung Afrikas*. (Berlin, G. J. Goschen, 1916.)
- EVANS, I. B. Pole.—*The Plant Geography of South Africa*. Forty-eight photographs illustrating plants in natural habitat, and vegetation chart.
- GODEFROY, Lieut.-Col.—*Transsahariens et Transafricains*. (Paris, E. Larose, 1919.)
- NEWLAND, H. Osman.—*Sierra Leone. Its People, Products, and Secret Societies*. (London, John Bale, 1916.)
- REVELIERE, Comte de la.—*Les Energies Françaises au Maroc*. (Paris, Plon-Nourrit et Cie, 1917.)—Shows the progress Morocco has made under the French régime.

Australasia

- LEWIN, Evans.—*The Commonwealth of Australia. Its Development and Resources*.
- SCHOLEFIELD, G. H.—*New Zealand*. (Both the above in *British Empire Section*, London, George Allen and Unwin.)—Admirable, condensed accounts of these countries from geographical, historical and economic points of view.

Exploration

- Handbook of Travel*. (Harvard University Press, 1917.)—Intended for explorers and full of helpfulness.
- MUIR, John.—*The Cruise of the Corwin*. (Boston, Houghton, Mifflin, 1917.)

XXIII. CHEMISTRY AND PHYSICS

CHEMISTRY

INORGANIC AND PHYSICAL CHEMISTRY

ARTHUR WESLEY BROWNE

Water.—A comparative study of the dissociating power of free and combined water, or water of hydration, has been made by G. F. Ordeman. The electrical conductivity of certain pairs of isohydric solutions was determined both before and after the addition of a third salt. In every pair of solutions the suppression of the conductivity was found to be more pronounced in the hydrated solutions, which indicates that the added salts dissociate to a greater degree in the non-hydrated solutions than in the corresponding solutions of hydrated salts. The difference in chemical activity of free and semi-combined water as illustrated by the effect of neutral salts upon the hydrolysis of acetic anhydride has been investigated by G. C. Connolly. In the fourth article of his series on water of hydration (*A. Y. B.*, 1915, p. 613), I. Guareschi has measured the minimum temperature at which dehydration occurs, and the rate at which water of hydration is lost, in the case of various salts containing two or three molecules of water of crystallization.

Nitrogen.—A solution of metallic sodium in liquid ammonia has been employed by C. W. Clifford in connection with the quantitative determination of the halogens in organic compounds. The method is based upon the fact that the halogen is completely converted into an inorganic halide. E. C. Franklin has prepared a number of interesting new compounds, including dipotassium ammonosodiate, dipotassium ammonolithiate, rubidium ammonosodiate, and rubidium ammonolithiate. All of these are rapidly decomposed by water or by liquid

ammonia solutions of acids. The electrolysis of fused sodium and potassium amides has been investigated by L. Wöhler and F. Stanglund, who have also studied various properties and reactions of these substances. R. E. Slade and G. I. Higson have determined the dissociation pressures of the nitrides of vanadium, boron, and tantalum by heating each of these metals in a platinum tube furnace in an atmosphere of nitrogen and measuring the pressure at which equilibrium is reached for a given temperature. L. A. Chugaev and I. I. Chernyaev have used hydroxylamine in place of ammonia in the formation of a series of complex compounds analogous to the platinoammines. Hydroxylamine also replaces ammonia in a series of mixed compounds of the general formula $[\text{Pt}(\text{NH}_2\text{OH})_n(\text{NH}_3)_{4-n}]\text{X}_2$. Continuing his work on the nature of subsidiary valences, F. Ephraim has studied the amines of cuprous and lithium salts and of certain double salts, and has investigated the "thermal degradation" of the ammonates of certain copper salts. A normal chromium trinitride combined with three molecules of pyridine, of the formula $\text{Cr}(\text{N}_3)_3 \cdot 3\text{C}_5\text{H}_5\text{N}$, has been described by E. Oliveri Mandala, as well as a hydrated basic chromium trinitride, $\text{Cr}(\text{N}_3)_2\text{OH} \cdot 2\text{H}_2\text{O}$. The potential of the anode immersed in an aqueous solution of sodium trinitride was measured against a tenth-normal calomel electrode by F. L. Usher and R. Venkateswaran. In the sixth article of their series on the behaviour of the hydronitrogens and their derivatives in liquid ammonia, A. W. Browne, M. E. Holmes, and J. S. King have studied the electrolytic nitridation of copper, silver, cadmium, lead, antimony, aluminium, iron, and nickel anodes in a liquid ammonia solution of ammonium trinitride.

Carbon.—In connection with a study of the constitution and thermal stability of the carbides, a series of experiments was conducted in an electric furnace of the Arsem type by O. Ruff, E. Jellinek, and T. Foehr. Experiments on the formation of carbides led to the conclusion that metallic carbides are stable, as a rule, up to temperatures above $2,500^{\circ}\text{C}$., and that even at these high temperatures carbon does not dissolve in the free state in the metals studied, but as a metallic carbide. Molten aluminium dissolves but little carbon, although it forms Al_4C_3 and probably also Al_2C_3 . Chromium dissolves 12 per cent. of carbon at $1,900^{\circ}\text{C}$. Carbides corresponding with the formulae Cr_5C_2 , Cr_3C_2 , and possibly CrC were formed. The known metallic carbides are said to conform with the following hydrocarbons: CH_4 , C_2H_6 , C_2H_4 , C_2H_2 , and C_2H_{10} . The stability of the carbides varies with the electropositive character of the metals; for example, the carbide Fe_3C is almost completely dissociated when vaporized, whereas Al_4C_3 is only partially dissociated. A. Damiens has prepared and analyzed the following carbides of the rare earth metals of the cerium group: CeC_2 , LaC_2 , NdC_3 , PrC_2 , and SmC_2 . These carbides were investigated metallographically, and the complex gas mixtures resulting from the action of water upon them were analyzed.

Colloid Chemistry.—R. C. Tolman and E. B. Vliet have described a convenient form of Tyndallmeter for use in determining the strength of the Tyndall beam in suspensions, colloidal solutions, smokes, and mists. With the aid of this apparatus Tolman and his coworkers have investigated the relationship between the intensity of the Tyndall beam and the concentration of silica suspensions and of ammonium-chloride smokes. The conclusion was reached that in general for liquid suspensions and for smokes a strict proportionality between concentration and strength of Tyndall beam is to be expected, provided that the concentrations are not so high as to cause absorption of light due to opacity. The rate of disappearance of smokes in a confined space was found to become more rapid when the smoke was stirred, owing to the increased op-

portunity for contact of the particles with the confining walls. The rate of disappearance of a finely divided smoke of given concentration was found to be greater than that of a coarser smoke, and the rate was found to increase with the concentration. From these facts it becomes apparent that it is impossible to raise the optical density of a smoke beyond a certain maximum by the introduction of further smoke material. P. V. Wells and R. H. Gerke have developed an oscillation method for measuring the size of ultramicroscopic particles by their oscillation amplitudes in an electric field which is reversed by a rotating commutator. This eliminates the uncertainties in previous methods due to the effects of Brownian motion and to passing out of focus; moreover, it renders possible the precise determination of the Stokes' law size of a single particle. Tolman and his associates have described an electrical precipitator for analyzing smokes, which consists essentially of a modified Cottrell precipitator, with a central wire cathode and an exceedingly light cylindrical anode, composed of aluminium foil 0.001 in. thick. The smoke to be analyzed is drawn through the apparatus at a measured rate, and the particles are precipitated by means of a high tension direct current. An interesting series of articles on colloid chemistry and its industrial applications contributed by various scientists is contained in the reports of a committee of the British Association for the Advancement of Science. A series of articles on the colors of colloids has been published by W. D. Bancroft.

Radiochemistry.—F. Paneth seems to have succeeded in preparing bismuth hydride, BiH_3 , by the use of a radioactive isotope of bismuth. Deposits of thorium B, an isotope of lead, and thorium C, an isotope of bismuth, were obtained upon a strip of sheet magnesium on exposure to thorium emanation. The gas obtained by dissolving the magnesium in dilute hydrochloric acid showed the characteristics of thorium C and was found to contain a hydride, BiH_3 , quite stable at ordinary temperatures but decomposing completely at a red heat. F. Paneth and E. Winternitz later attempted the preparation of weighable

amounts of the gas from inactive bismuth. An alloy of bismuth and magnesium was treated with 4N acid, and the resulting gas was carried to a Marsh apparatus in a stream of pure hydrogen. A sufficient amount of the hydride was obtained to permit detection by the formation of a mirror or by luminescence tests, although only 5×10^{-5} of the bismuth was converted to the hydride.

One of the most interesting of the scientific announcements of the year has been made by E. E. Rutherford in connection with his study of the collision of *alpha* particles with light atoms. An activated disk provided with a homogeneous deposit of radium C was mounted vertically inside a gas chamber from which the particles emerged through small metal screens of silver. The zinc-sulphide screen was mounted just outside the window in front of the microscope through which the number of scintillations was counted. In hydrogen it was found that on the average 105 *alpha* particles give rise to one swift hydrogen atom in traversing one centimetre of the gas. When air was used in place of hydrogen, particles were observed to have the same velocity and range as that of the swift hydrogen atoms. This was true in spite of precautions taken to ensure absence of moisture or any other possible source of hydrogen. When pure nitrogen was substituted for air, the effect was increased in the ratio 5:4. The scintillations produced, moreover, were found to be like those obtained with hydrogen. The conclusion was finally reached that the intimate collision of an *alpha* particle from radium C with a nitrogen atom results in the dissociation of the latter and the emission at high velocity of a particle with the atomic weight of two. It is believed that the nitrogen nucleus consists of three helium nuclei, each of atomic weight four, and either two hydrogen nuclei or one nucleus of atomic weight two. When the intensity of the forces involved in the emission of *alpha* particles from radium C is borne in mind, the disintegration of the nitrogen atom should not be so much a matter of surprise as is the escape of the *alpha* particle itself from disruption.

O. Hahn and L. Meitner have ex-

tracted from the silica residue obtained after treatment of pitchblende with hot, concentrated nitric acid a radio-active substance which they regard as the parent of actinium. This substance, to which they have given the name "protactinium," resembles tantalum chemically, and is said to be one of the five new radioactive elements that occupy hitherto vacant places in the periodic arrangement. For each gramme of radium in uranium minerals there should be 60 mg. of protactinium, if its half-life is assumed to be 1,200 years. Its atomic weight is probably either 230 or 234. Hahn and Meitner believe that protactinium is identical with the long-lived isotope obtained by Soddy and Cranston and called by them "eka-tantalum." S. C. Lind has found the velocity of the reaction between hydrogen and oxygen gases at ordinary temperatures under the influence of radium emanation to be dependent in a given volume solely upon the quantity of the emanation used and the pressure of the gas. The abnormally high results obtained in small volumes and particularly at low pressure are explained on the assumption that the recoil atoms, *i. e.*, the residual atoms thrown back after the emission of the *alpha* particles, contribute to the reaction in proportion to their relative ionizing power.

Gallium and Germanium.—A number of investigators have started work during the year upon the hitherto but little studied element gallium. T. W. Richards, W. M. Gray, and J. Samashima have described a method for the purification of gallium chloride by sublimation and have analyzed that compound. Richards and Boyer have studied the purification of gallium by electrolysis (see *A. Y. B.*, 1918, p. 645), and have measured the compressibility and density of gallium. The sulphite method for the separation and determination of gallium when associated with zinc has been suggested by L. E. Porter and P. E. Browning, and the extraction of gallium and germanium from zinc oxide has been worked out by H. C. Fogg and C. James.

Sulphur, Selenium, and Tellurium.—In connection with an investigation of the thiocyanates of gold, N. Bjerrum and A. Kirschner obtained

some evidence of the existence of free thiocyanogen (SCN)₂, a halogen-like substance. A new oxide of selenium, of the formula Se_2O_4 , has been prepared by F. von Konek in connection with his work on the determination of selenium in diantipyryl selenoselenide. This compound was burned in a bomb in oxygen under a pressure of 25–30 atmospheres. The new oxide is a white, amorphous solid, insoluble in water and in ethyl alcohol. L. M. Dennis and J. P. Koller have prepared the following selenium compounds in the course of an investigation upon selenic acid and copper selenate: $\text{CuSeO}_4 \cdot 4\text{NH}_3 \cdot \text{H}_2\text{O}$; $\text{CuSeO}_4 \cdot 3\text{NH}_3 \cdot \text{H}_2\text{O}$; $\text{CuSeO}_4 \cdot 4\text{NH}_3$. A. M. Hageman has demonstrated the existence of a tellurium sulphide of the formula TeS_2 , and the non-existence of a sulphide of the formula TeS . He has also made a study of the preparation of certain organic salts of tellurium.

Fluorine.—W. L. Argo and his co-workers have prepared fluorine in large quantities by electrolysis of fused potassium bifluoride, KHF_2 , in a copper cell which served as the cathode. The anode, of graphite, was centrally suspended and surrounded by a diaphragm. The method of Moissan was found impracticable for quantity production. Pure fluorine will ignite sulphur and will light the gas issuing from a Bunsen burner. G. L. Clark has made a study of the potassium and sodium double salts of lead tetrafluoride as sources of fluorine.

Miscellaneous.—A. Hantzsch has devised a chemical means of distinguishing between "true" acids, in which the hydrogen is "ionogenically" bound, and "pseudo" acids, which are of such constitution as to be optically identical with their esters or as to become so in certain solvents, such as ether, and which have their hydrogen atoms linked to single oxygen atoms, and therefore "non-ionogenically" bound. The reaction between ethyl diazoacetate and an acid, as the result of which nitrogen is liberated, serves as a sensitive test for ionizable hydrogen atoms. Hantzsch believes that the theory of electrolytic dissociation is placed upon a chemical basis by the chemical proof of optical change due to difference in linkage. The chemical nature of the cations is attributed

to hydration of the ions in certain cases. Water and ether, like ammonia, are supposed to attach themselves to the ionizable hydrogen ion. An acid is defined as a hydrogen compound in which the hydrogen is replaceable by a metal, rather than as a substance that yields hydrogen ions. The slight dissociation of water is explained by the formation of oxonium hydroxide, OH_3OH . A. Stock and C. Somieski have continued their work upon the silicon hydrides (A. Y. B., 1916, p. 615), by investigating the chlorination and methylation of monosilane. Methylsilane, SiH_3CH_3 ; methylchlorosilane, $\text{SiH}_2\text{ClCH}_3$; methylchlorosilane, $\text{SiHCl}_2\text{CH}_3$; and dimethylsilane, $\text{SiH}_2(\text{CH}_3)_2$, were obtained. The limit and composition of the earth's atmosphere, expressed in percentages of nitrogen, oxygen, argon, and hydrogen at varying heights up to 300 km., have been studied from a theoretical view-point by A. Veronnet. H. I. Schlesinger and R. D. Mullinix have determined the conductivity of calcium and strontium formates in anhydrous formic acid. A discussion by I. Langmuir of the arrangement of electrons in atoms and molecules has attracted considerable attention during the past few months (see also *Physics, infra.*) Langmuir's theory is essentially an extension of the theory of the "cubical atom" proposed by G. N. Lewis. It is frankly opposed to Bohr's theory of the atom. R. W. G. Wyckoff has published an article on the nature of the forces between atoms in solids.

Bibliography.—Of the numerous books published during the year on inorganic and physical chemistry may be mentioned the following:

- AULD, S. J. M.—*Gas and Flame in Modern Warfare*. (Doran.)
 A *Century of Science in America, with Special Reference to the American Journal of Science, 1818–1918*. (Yale Univ. Press.)
 OSTWALD, Wolfgang.—*A Handbook of Colloid Chemistry. The Recognition of Colloids. The Theory of Colloids and their General Physico-chemical Properties*. 2d Ed., revised by M. H. Fischer; numerous notes added by E. Hatschek. (Blakiston.)
 SMITH, J. H.—*Recent Discoveries in Inorganic Chemistry*. (Cambridge Univ. Press.)
 WALKER, James.—*Inorganic Chemistry*. (London, Bell & Sons.)

ORGANIC CHEMISTRY

HARRY L. FISHER

Paraffin Hydrocarbons.—The paraffin hydrocarbons are so inert towards most reagents that it is of considerable interest to note a new reaction. E. V. Lynn (*Jour. Am. Chem. Soc.*, xli, 368) states that pure heptane, for example, was found to react with nitrosyl chloride in sunlight, although it did not react in the dark. It gradually changed to blue and a deposit of ammonium chloride formed. The blue color quickly disappeared and a yellow oil was produced while hydrogen chloride was evolved. When the product was steam distilled, there was obtained a mixture of three ketones: methyl-pentyl-ketone, ethyl-butyl-ketone, and dipropyl-ketone. In the reaction a nitroso-derivative is probably formed first with evolution of HCl; this then rearranges to an oxime, which is hydrolyzed to one of the ketones, in the steam distillation.

A Green Hydrocarbon.—Part of the yellow coloring matter in carrots is a hydrocarbon, carotin, $C_{40}H_{56}$, and recently a deep blue hydrocarbon, azulene, $C_{15}H_{18}$, was isolated from essential oils by Sherndal (*Jour. Am. Chem. Soc.*, xxxvii, 167, 1537). Now Dziewonski and Sukmarowski (*Ber. Deutsch. Chem. Ges.*, li, 457) announce the discovery of a green hydrocarbon, which they have named "chlorene," $C_{48}H_{20}$. It was prepared by heating acenaphthene, $C_{12}H_{10}$, with lithium for five to eight hours at 350° C. Dilute benzene solutions of it are pure deep green but become brownish red in sunlight. The substance crystallizes in dark green scales.

Halogenation.—V. Cofman (*Jour. Chem. Soc.*, cxv, 1040) has found that the amount of iodophenol formed in some of the regular reactions for the iodination of phenols is in direct proportion to the amount of hypoiodous acid present. He has shown that in all the known reactions for iodinating phenols hypoiodous acid is known to exist in the reagent or it is possible to show its presence. Therefore he believes that the reactive substance is hypoiodous acid, and not iodine, and indicates that it is probably true also in other similar reactions. This same acid had previously been shown by

physico-chemical methods to be the reacting agent in the preparation of iodoform from alcohol, iodine, and sodium carbonate, by Daventer and Van't Hoff (*Rec. trav. chim.*, i, 35) and Pierroni (*Gazetta*, xlii, 1, 534).

It is seldom that a hydrogen in an unsaturated hydrocarbon can be replaced directly by bromine. Except in special cases, bromine always adds to the "double bond." Wohl (*Ber. Deutsch. Chem. Ges.*, liiB, 51), however, has been able to replace a hydrogen atom with bromine in an unsaturated hydrocarbon by using N-bromoacetamide (acet-brom-amide), acetamide being formed as a by-product.

Silane, SiH_4 , can be brominated by means of hydrobromic acid in the presence of $AlBr_3$ (Stock and Somieski, *ibid.*, li, 989).

Amines.—In a mixture of diethylamine and triethylamine, E. A. Werner (*Jour. Chem. Soc.*, cxiii, 899) easily accomplished a practically quantitative separation of the two constituents, after preliminary analysis, by adding the calculated amount of hydrochloric acid to combine with the secondary amine and extracting the tertiary amine with ether. He also separated a mixture of di- and tri-butyl amines in this same way. Somewhat similarly, although not quite so completely, he separated the di-butyl amine from the mono-butyl amine (*ibid.*, cxv, 1010). Since most textbooks state that "the successive introduction of alkyl groups into ammonia increases the basicity," Werner believes that these experiments go to show that the prevailing views with respect to the relative basicity of primary, secondary, and tertiary aliphatic amines require to be considerably modified.

Carbohydrates.—Very accurate work on the optical properties of α - and β -d-glucose and β -d-fructose by J. M. Nelson and F. M. Beegle (*Jour. Am. Chem. Soc.*, xli, 559) has shown that the specific rotation of α -glucose is 111.2° (instead of 110°) and that it does not vary with the temperature between 0.15° and 37° . The specific rotation of β -glucose is 17.5° (instead of 19.7°), and it also does not change with the temperature. The rotation at final equilibrium for both α - and β -glucose was found to be 52.5° at all

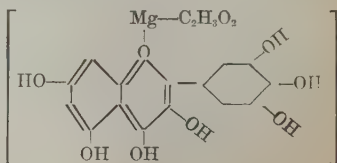
temperatures and concentrations studied, and this is in accord with previous observations. For β -fructose the specific rotation was found to be -130.8° (instead of -133.5°) for all temperatures between 0.15° and 37° , but the equilibrium rotation varied with the temperature. Since the specific rotations of the two isomeric glucoses and the rotation at equilibrium are independent of the temperature, it follows that the heat of the reaction occurring during the change in rotation (mutarotation) is zero. The mutarotation of glucose, therefore, appears to be similar to the racemization of many optically active compounds, like the malic acids, and does not involve any change in the chemical constitution other than spacial. This is in accord with the generally accepted view of the difference between the two isomeric d-glucoses, that is, a simple spacial change around the end carbon, and is contrary to the speculations of Nef (*Annalen*, cdi, 273, 306) and Anderson (*Jour. Phys. Chem.*, xx, 269), who have recently proposed that the difference between the two forms is in the position of the lactone bridges.

Three pairs of α -hexosaminic acids have been prepared by P. A. Levene (*Jour. Biol. Chem.*, xxxvi, 73), a pair each from arabinose, lyxose, and xylose, forming α -amino-gluconic, mannonic, galactonic, talonic, gulonic, and idonic acids. In the case of each pair the algebraic difference of the rotations equaled 25° . These results contain the best evidence as yet advanced in support of Van't Hoff's optical superposition theory. In the series of α -hexosaminic acids the law holds true not only with regard to the direction of the rotation, but also with regard to its numerical value. The reason for the more perfect agreement between the numerical values in this series of substances may be attributed to the fact that the phenomena of electrical dissociation here play a comparatively subordinate part and that individual amino sugar acids are accessible in a purer state, since the separation of their epimers is more perfect than in the case of those of the ordinary sugars.

Sitosterol and Cholesterol.—Through the study and comparison of

the reduction and oxidation products of sitosterol, one of the high molecular-weight unsaturated alcohols in seeds and plants, with the corresponding products of cholesterol, which is a similar alcohol found in animal tissue and "wool-grease," Windaus and Rahlen (*Zeit. physiol. Chem.*, ci, 223) have concluded that the difference between these two substances is not due to the position of the single hydroxyl group or the double linking, but to some other structural or steric arrangement.

Coloring Matter of Flowers: Anthocyanins.—In 1913 Willstätter and Everest (*Annalen*, cdi, 189) showed that the blue pigment of the corn flower was a glucoside of cyanidin which was later obtained by reducing quercetin (a flavonol) with magnesium and hydrochloric acid. Willstätter then explained some of the changes in colors by assuming that the violet color was due to the formation of an inner oxonium salt and that the blue modification was a phenolate of the inner salt formed with an excess of alkali. K. Shibata, Y. Shibata, and I. Kasiwagi (*Jour. Am. Chem. Soc.*, xli, 208) have now shown that blue and green pigments can be obtained from the flavonols by reduction with magnesium and an organic acid instead of an inorganic acid, and the substances formed are similar to those previously isolated but consist in addition of a metallic complex containing the magnesium salt of the organic acid used. These complexes are very stable, but when treated with a mineral acid, they go over to the compounds first described by Willstätter. For example, myricetin (a flavonol), on reduction with magnesium and glacial acetic acid, gives green compounds of the composition $C_{15}H_{11}O_6MgC_2H_3O_2$ [$Mg(C_2H_3O_2)_2$] $_n$, n being two or four, the structural formula (omitting the [$Mg(C_2H_3O_2)_2$] $_n$) being represented as follows:

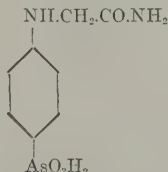


New books on plant pigments are A. G. Perkin and A. E. Everest, *The Natural Organic Colouring Matters* (Longmans, Green), and Wheldale, *The Anthocyanin Pigments of Plants*.

Other Natural Coloring Matters: **Ragweed Pollen.**—From ragweed pollen Heyl (*ibid.*, 1285) has obtained a total yield of glucosidic coloring substances of about 0.6 per cent. of the pollen. From this he isolated a new isomeric quercitin glucoside, $C_{21}H_{20}O_{12}$, and isorhamnetin glucoside.

Turmeric.—*Curcuma longa* yields turmeric, a substance used formerly as a brilliant yellow dye and still used for preparing the familiar indicator test paper and in condiments such as curry powder. The chief substance in turmeric is called curcumin. Its formula was put forward in 1910 by Milobedzka, Kostenecki, and Lampe (*Ber. Deutsch. Chem. Ges.*, xliii, 2163), and it has now been completely synthesized by Lampe (*ibid.*, li, 1347). It is an aromatic unsaturated β -diketone and is related to vanillin and cinnamic acid. Its structural formula is $HO(4).OCH_3(3).C_6H_3.CH:CH.COCH_2.CO.CH:CH.C_6H_3.OCH_3(3).OH(4)$.

Arsenicals.—A very large number of organic arsenic compounds have been synthesized by Jacobs and Heidelberger (*Jour. Am. Chem. Soc.*, xli, 1581, 1587, 1600, 1610, 1809, 1822, 1826, 1834) for studies in the treatment of experimental trypanosome and spirochæte infections. As their starting materials they used two quinivalent arsenic compounds, p-amino-phenyl-arsonic acid (arsanilic acid or atoxyl) and p-hydroxy-phenyl-arsonic acid. Best biological results were obtained with N-phenyl-glycinamide-p-arsonic acid:



Analytical Methods.—For the organic chemist the surest way of completing the identification of a compound is to prepare a derivative of it

and check up its properties. J. B. Rather and E. E. Reid (*ibid.*, 75; *Ark. Agr. Expt. Sta. Bull.* 156, 32) have successfully used phenacyl bromide (brom-acetophenone) as a reagent in preparing the phenacyl esters of organic acids. These products have been studied singly and have been used for the isolation and identification of acids in complicated mixtures, especially in such mixtures as are found in agricultural products and biological products in general.

Acyl-amino-phenol Ethers.—A new method of synthesis of acyl-amino-phenol ethers has been published by Kitamura (*Jour. Tokyo Chem. Soc.*, xxxix, 1121) who has found that acid amides react with the halogen of the halogen substituted phenol ethers in the presence of copper powder or copper and zinc salts as condensing agents in the following manner:



Mustard Gas.—The following valuable articles in connection with the manufacture of war gases in this country and in Germany are of decided interest: Dorsey, "The Development Division, Chemical Warfare Service, U. S. A.," (*Jour. Ind. and Eng. Chem.*, xi, 281); Gomborg, "Ethylene Chlorohydrin and β,β -Dichloroethyl Sulfide (Mustard Gas)," (*Jour. Am. Chem. Soc.*, xli, 1414); and Norris, "The Manufacture of War Gases in Germany," (*Jour. Ind. and Eng. Chem.*, xi, 817).

BIOLOGICAL AND FOOD CHEMISTRY

CARL L. ALSBERG

Nutrition. Proteins.—The best account of the greatly restricted war diet in Germany is given by Rubner, printed in abstract in the September and October numbers of the *Military Surgeon*. Among the effects reported, aside from the general lowering of the body weight and the increased morbidity resulting from undernourishment, are the psychic effects upon the city population, the occurrence of digestive disturbances due to the bulkiness of the diet, polyuria accompanied by in-

continence of urine due to the high water content of the food, and dropsy. The latter Rubner attributes to the excessive water content of the diet and disturbance of metabolism due to the small amount of protein in the food. Others attribute this dropsy, as well as trench sickness, to the lack of vitamins. The study of vitamins and of the diseases supposed to be due to the absence of vitamins, such as beri beri, pellagra, and scurvy has been very active.

There is at present little available information concerning the amounts of vitamins furnished by different foods. For such articles as the green foods, which, because they yield relatively little energy and little protein, are quite expensive, it is most important to know how much vitamin they contain. Otherwise it is impossible to determine whether the expense involved in their use is warranted. Moreover, their cheapest source should be ascertained. Osborne and Mendel have undertaken such studies on green foods and have reached the following preliminary conclusion:

If one may draw conclusions from the limited data now available, it seems that green vegetables supply an important addition to the diet of man because the staples, such as cereals, potatoes, fats, and sugar, probably furnish too small an amount of either of these vitamins [water- and fat-soluble vitamins] to fully meet the requirements of an adequate dietary. Therefore care should be taken not to reduce greatly the quantity of green vegetables customarily eaten until more is learned about the actual requirements for these food factors and their relative abundance in the commonly used vegetables and green foods. Only then will it be safe to apply the results obtained in the laboratory to attempts to effect economies in the use of these relatively expensive food products.

It has been shown that all of the anti-neuritic vitamin of wheat and corn is located in that part of the endosperm immediately surrounding the germ or embryo (Osborne, Voegtlin). Steenbock has found that yellow corn contains sufficient fat-soluble vitamin to permit normal growth and reproduction, whereas white corn contains practically none. He suggests that the fat-soluble vitamin is a yellow plant pigment or a compound

related to it. However, Palmer and Kempster fed fowls upon a diet practically devoid of the yellow plant pigment, xanthophyll, and concluded that "the natural yellow pigment of fowls which is derived from the xanthophyll of the food bears no important relation to growth or to the functions of fecundity and reproduction, at least for one generation."

Johns and Jones have found that copra-press cake (cf. A. Y. B., 1918, p. 654) contains water-soluble vitamin, and coconut globulin contains an abundance of the necessary amino acid lysin. Hence copra cake is of the utmost value as a concentrated feeding stuff for growing animals and dairy cows, and it is desirable to retain permanently in this country a copra-crushing industry. Dakin has developed a very important new method of studying the cleavage products of proteins obtained by acid hydrolysis. Johns and Jones have described a new method for the determination of tyrosin. They have discovered lysin in hordein, the principal-protein of barley, and they have determined the amino acids which make up the molecule of kafirin, the principal protein of the seed of the grain sorghums. Smith has shown by a study of the mutarotation of gelatin solutions that the phenomenon of jell formation in such solutions is connected with a relatively simple polymerization. Upon these observations exact practical methods for the determination of the jellying powder of gelatins and glues by the use of the polariscope may be developed.

There are now being published the very numerous investigations made during the war to utilize a great variety of waste materials for cattle feed. Especially noteworthy are those proposing to make more available such cellulose-containing products as straw and sawdust by preliminary treatment with alkali. However, Pringsheim and Magnus have been unable to find in the intestinal tract of the ox any enzyme capable of acting on cellobiose, one of the sugars formed in the cleavage of cellulose. Hence they conclude that such utilization of cellulose as takes place is the result of the formation by bacteria of products available to the animal.

Pharmacology.—The surgery of the war, with its lesson that the most severe operations can be performed under local anæsthesia, has stimulated pharmacologists to search for new and improved local anæsthetics. Macht has discovered that benzyl alcohol and related compounds are valuable local anæsthetics. In a similar manner war wound treatment has stimulated the study of and the search for new and improved antiseptics. Moreover, the great mass of pharmacological work done during the war upon poisonous gases is beginning to be published, especially that upon the action of mustard gas, phosgen, chlorine, chlorpicrin and cyanogen compounds. Many publications have also appeared on certain vocational intoxications, especially in the war industries using such materials as anilin and trinitrotoluene.

The war shut off very largely the importation of synthetic drugs, with the result that a national synthetic drug industry is in process of creation. Such drugs as arsphenamine (neosalvarsan), phenylcinchonic acid (atophan), barbital (veronal), sodium barbital (medinal), and many others are now being produced in satisfactory quality and quantities. There is much agitation for the establishment of a national institute for pharmaceutical research as a necessary adjunct to the development of a great dye industry. This movement has not yet taken tangible form.

Food Supplies.—The removal of the restrictions placed by the U. S. Food Administration upon the use of wheat flour (*A. Y. B.*, 1918, p. 653) and sugar resulted in a reaction by the country so that the consumption of both materials has been very great, the consumption of sugar during the first half of the year being at a yearly rate several pounds *per capita* greater than ever before. There was a great demand for the whitest of short patent flours, other grades moving with difficulty. In consequence, as well as in consequence of the cessation of brewing, the dry-corn milling industry, which had expanded greatly during the war to meet the demands for flour substitutes (*A. Y. B.*, 1918, p. 653), is suffering from a very serious depression. However, the production of

malt sugar syrup (*A. Y. B.*, 1918, p. 653) from corn and to some extent from rice continues to grow by leaps and bounds because of the shortage of sugar which became manifest during the latter part of this year. It seems probable that this will remain a permanent industry capable of competing with the glucose industry, since maltose syrup is sweeter and has a pleasanter flavor than glucose. The development of the near-beer industry has brought a new type of starch syrup upon the market, one in which the conversion of the starch is so managed that the main product is dextrine with very little fermentable sugar. The use of such a material in the production of near-beer aids in keeping down the alcohol content of the finished product. Considerable literature is developing upon thin and non-alcoholic beers as well as upon their diseases.

The manufacture of pectin for the production of jellies is increasing. Pectin is a carbohydrate found in many fruits like the apple. It is itself without food value for man, but in the process of jelly making the acid of the fruit acts on the pectin in such a manner as to cause the product to jell on cooling. Purified pectin, usually obtained from the apple, is now on the market. By its use jellies may be made from such fruits as the strawberry which do not naturally contain much pectin. It is also claimed that the use of pectin makes it possible to obtain more uniform products, as well as to shorten the period of heating with beneficial effects upon the flavor. If the normal amounts of fruit and sugar are used and the presence of the pectin is declared upon the label, its use would seem to be legitimate and possibly an improvement of the art.

Important contributions have been made to our knowledge of botulism (*A. Y. B.*, 1917, p. 604) by Dickson, by Thom, Edmondson and Giltner, and by Rosenau. *B. botulinus* grows only in the absence of air, that is anaerobically, though it may develop together with actively growing yeasts when these develop enough carbon dioxide through fermentation to exclude air (Shippen). This bacillus is not itself pathogenic, but it produces a most virulent toxin which is absorbed from the intestinal tract. The bacillus itself

when washed quite free from toxin is harmless. The toxin is destroyed by heat, so that food cooked just before consumption is not apt to cause poisoning. All recent cases of botulism resulted from the consumption of uncooked food, in most cases obviously spoiled. Safeguards are the discarding of any food that is even slightly abnormal in odor or shows any other evidence of spoilage, and also the heating of the food to 80° C.

Food and Drug Control.—Especial attention was paid in the enforcement of the Federal Food and Drugs Act during the year to drugs. Many prosecutions were made of shippers of misbranded proprietary remedies for the treatment of venereal diseases and of proprietary veterinary remedies. There were also numerous prosecutions for the adulteration of crude drugs and pharmaceuticals. Many shipments of butter were proceeded against on the ground that they were deficient in butter fat. To supersede Circular 19, the U. S. Department of Agriculture issued Circular 136, "Standards of Purity for Food Products." It also issued the following food-inspection decisions: No. 177, soda-water flavors and soda water; No. 178, milk and cream; No. 179, amending regulation 29, which relates to marking the quantity of food in package form; No. 180, colors in food.

At a conference of egg dealers and food officials held in St. Louis a model law for the control of the traffic in eggs was drawn up, designed to prevent spoilage of eggs by compelling candling of eggs before shipment. This law has been enacted in a number of states.

The bleached-flour case (*A. Y. B.*, 1914, p. 620), brought some years ago under the Federal Food and Drugs Act, was terminated in 1919 (Notice of Judgment 6380). The libel was amended to strike out the allegation to the effect that the flour contains an added deleterious ingredient which might render it injurious, in view of the experimental work of the Bureau of Chemistry which did not indicate that the allegation was tenable under the interpretation of the law by the U. S. Supreme Court (*N. J.* 3398). The claimant then withdrew appearance and answer, and a default decree

of condemnation and forfeiture was entered as to the remaining allegations in the libel.

Publication has been made of four judicial decisions of interest, involving interpretation of food laws. The U. S. Supreme Court (Notice of Judgment 6308) affirmed judgment of the lower courts against Oscar J. Weeks, doing business as O. J. Weeks & Co., in connection with the misbranding of an article labeled "Special Lemon, Lemon Terpene, and Citral." A salesman of the defendant in offering the article for sale represented it as lemon oil, which it was not. The defendant upon appeal insisted that under the statute the question whether an article is misbranded turns entirely upon how it is labeled when it is shipped, regardless of any representations made by a salesman in offering it for sale. The U. S. Supreme Court, however, held that the statute specifies and defines at least two kinds of misbranding, one where the article bears a false or misleading label, the other where it is offered for sale under the distinctive name of another article. The two are quite distinct, a deceptive label being an essential element of one but not of the other. The Court accordingly ruled that testimony respecting the representations of the defendant's salesman was rightly admitted in evidence and submitted to the jury.

The case reported in Notice of Judgment 6362 is one under the *Sherley* amendment to the Food and Drugs Act, alleging misbranding of "Dr. J. H. McLean's Liver and Kidney Balm." The Court of Appeals of the Eighth Circuit reversed a judgment of conviction in the lower court because of error in the instructions of the court, and a new trial was awarded. In the instructions to the jury on the question of the fraudulent character of the statements made by the defendant regarding the article, the court inadvertently said that "one who makes a false statement not knowing whether it is true or false is as guilty of wrong as the man who makes a false statement knowing it is false." The Court of Appeals held this portion of the charge was erroneous, as it permitted the jury to find that these false statements were fraudulent although the defendant honestly believed them true.

In *Hebe Co. and Carnation Milk Products Co., v. Norman E. Shaw*, Secretary of Agriculture of Ohio, and Thomas O. Gault, Chief of the Bureau of Dairy and Foods of the Board of Agriculture of Ohio, the U. S. Supreme Court held in effect that the law of Ohio forbidding the sale of condensed skimmed milk is valid and applies to the product Hebe shipped in interstate commerce consisting of condensed skimmed milk and coconut oil.

In *Corn Products Refining Co. v. V. C. Eddy, et. al.*, the U. S. Supreme Court held in effect that the regulation of the Kansas State Board of Health requiring the label of a compound article of food to bear a statement of the percentage of each ingredient is valid under the state law, and that no one has a "constitutional right to sell goods without giving to the purchaser fair information of what it is that is being sold."

SANITARY CHEMISTRY

F. R. GEORGIA

Foods and Beverages.—The work done in sanitary chemistry during the war, most of it withheld from publication and thus from review in the last issue of the YEAR BOOK, is now being published and made available for the general information of the public. Recent work on foods has been largely concerned with measures of conservation and the development of new products. The widespread use of mixed flours and flours containing a considerably larger percentage of the entire grain than formerly made necessary various modifications in baking procedures. In this connection the use of various compounds of lime by French workers is of interest. These compounds are used for the purpose of correcting the high acidities in flours of the Graham type which contain considerable amounts of bran. The high acidities tend to inhibit the usual fermentation processes of the yeast. There is some dispute as to whether calcium hydroxide or calcium carbonate is the better for such use.

The desiccation of foods was stimulated during the war by the shortage of transportation facilities. Milk was one of the food products affected by these conditions. Products for

which the term "remade" milk has been suggested have appeared on the market. They are produced from such materials as evaporated or desiccated whole or skim milk, unsalted butter, and various other fats by mixing all or part of these ingredients with water in suitable proportions. Special processes are used in order properly to emulsify the fat. The use of any fat other than butter, as, for example, coconut fat, is regarded as an adulteration in "remade" milk. Such a product may be legally sold, however, for what it is.

During the war, due to the urgent need for large amounts of sulphuric acid, the quality of this acid was materially lowered, and considerable amounts of arsenic found their way into it. This was especially true in England. As a result, arsenic was found in various ingredients of food products which require sulphuric acid in their manufacture. Arsenic has also been noted in food products which have been treated with sulphur dioxide. In this case the source of the arsenic was imported arsenical sulphur, chiefly from Japan.

The shortage of tin and the much increased demand for canned foods, for both the armies and the civil populations of Europe, caused a rather serious situation during the war. The difficulty was met in some cases by the use of other types of containers, for example, waterproofed paper containers for desiccated milk and eggs and moisture-proof paper containers with tin tops and bottoms. In Germany, where this shortage was probably most acute, not only was the thickness of the tin layer in cans materially reduced, but the tin itself contained in many cases a considerable amount of lead.

Several instances of food poisoning were noted in the Army. Some of these were undoubtedly due to canned meats which had been improperly sterilized. Many others, however, were due to improper handling and storage of foods by Army cooks, who in most cases were ignorant of the first principles of sanitation.

The inauguration of national prohibition has placed the question of beverages in an entirely new aspect. One of the first results of the law was at-

tempts by many people to produce alcoholic beverages in the home, often resulting in products more objectionable than those prohibited by the law. Wood alcohol has been used as never before in products resembling whiskey and has resulted in several hundred deaths in addition to many cases of blindness. Denatured and medicated alcohols have also been used for beverage purposes but such use is exceedingly dangerous as it is not practicable to separate the poisonous ingredients from the ethyl alcohol. Many non-alcoholic beverages resembling beer have appeared on the market. In addition, the consumption of soda water and non-intoxicating bottled beverages has very materially increased. This eventually contributed to a serious shortage of sugar. The decidedly inferior quality of many beverages of this type has in the circumstances aroused considerable interest.

Water.—With one or two exceptions work in the field of water purification in the Army was confined to the application of more or less well known practices to field conditions. At the Army concentration and training camps in this country it was possible to build water-supply and purification systems similar to those in common use by our various municipalities. In France, however, where troops continually shifted from place to place such permanent systems as a rule were not feasible. Some were constructed at base ports and other permanent stations, but on the whole it was necessary to provide more or less portable equipment for the disinfection of drinking water. The method of treatment almost always consisted in the application of chlorine in one form or another. For small amounts a portable canvas container known as the Lyster bag was used. Sealed glass tubes containing a definite amount of chlorinated lime were used for the chlorination of water in these bags. Chlorinated lime was also used in connection with extemporized devices for the continuous chlorination of rather small supplies, where mechanical pumps or gravity feeds were used. On larger supplies of this sort liquid-chlorine machines were used. Mobile units of at least three types were mounted on motor trucks. The most

important of these, known as the "Steri-Lab.," consisted essentially of a gasoline-driven pump, a small vertical filter of the pressure type, a Wallace-Tiernan liquid-chlorine machine, storage tanks, and a sodium-thiosulphate dechlorinator. Alum was used as the coagulant and was fed to the water entering the filter by means of a special device. The practice was to heavily overchlorinate the raw water at the suction end of the pump and then to dechlorinate it after a rather brief contact period. A small laboratory was provided in the forward part of the truck. It was equipped for making the necessary chemical and bacteriological tests for the control of the various operations. Another unit used was similar to the above except for the omission of the filter. This type was limited to waters containing but little material in suspension, but its capacity, on the other hand, was about double that of the "Steri-Lab." Laboratories for the examination of water were also mounted on trucks and used to examine water supplies where local laboratory facilities were not available. In newly acquired territory a new departure in the examination of water was made necessary by the practice of the Germans in poisoning wells and other water supplies. Here it was necessary to examine all such supplies for a variety of poisons before they could be used.

A new term has arisen in connection with water purification, namely, the "chlorine index" of a water. This is an expression, in terms of milligrammes per litre, of the amount of chlorine the material in solution and suspension in a water will consume. It is an approximation of the amount of chlorine required to render the water sterile. In all chlorination work in the field use was made of starch-iodide mixtures and orthotolidine for the detection of free chlorine. They were of great use in determining the dosage of chlorine to be applied. The chloramine treatment of water has been tried at various places. At present prices it has lost the advantage of economy and it also requires more attention in its control. A mechanical filter of the drifting sand type has been in use in Toronto for some time. This plant is unique and repre-

sents a new departure in filter construction. Sand is carried into these filters by a part of the raw water through pipes which rise up through the sand beds. The sand, thus carried in, distributes itself in cones about the influent pipes. Sand is continually removed from the base of these cones, washed, and again introduced into the raw water. This procedure causes a continual movement or drift of the surface layers of sand. Beneath the upper layers the sand remains stationary and is said to act very much like an ordinary mechanical sand filter. The purpose of the drifting layer of sand is to provide a continuous means of removing a large part of the coagulant and other suspended matter from the filter and thus lengthen the interval between washings of the entire filter. Basic aluminium sulphate is used as the coagulant and is introduced into the water just before it goes to the filter so that no time is allowed for flocculation and sedimentation. An average bacteria removal of 85.4 per cent. has been reported for these filters. Chlorination is used to bring the removal up to 99.9 per cent.

A considerable amount of interest has been shown in the field of water softening, and a large number of patents have been issued for processes for accomplishing this result. The base-exchanging compounds of the zeolite type have received the most attention.

Sewage.—Of the newer methods of sewage treatment the activated sludge process still holds the center of the stage with the Mills acid process exciting some interest. Some difficulty has been had in the operation of sprinkling filters because of certain moth-like flies (*Psychoda alternata*, Say, and *Psychoda cinerea*, Banks). These flies pass their larval and pupal stages in the films on the filter stones with their breathing tubes projecting through the films. The use of chemical insecticides has not met with success, since where they have been applied, the protozoa in the films, which are responsible for the action of the filters, are killed before the larvae are destroyed. The difficulty has been solved by flooding the filter with the sewage for a period of 24 hours. This drowns the larvae but does not impair the efficiency of the filters.

AGRICULTURAL CHEMISTRY

WILLIAM H. ROSS

Soils.—The investigational work in soil chemistry that has received most attention during the year has related in large measure to studies that have already been outlined in previous issues of the YEAR BOOK. In continuing their study of the physiological action on plants of organic compounds which have been isolated from the soil, Skinner and Reid (*Am. Jour. Bot.*, vi, 167) have found that *a*-crotonic acid in amounts of 25–50 parts per million is very harmful to wheat plants grown in nutrient culture solutions. Phosphates had an ameliorating effect on the harmfulness of the acid, and its toxic action decreased as the content of phosphate increased. It was also shown that the effect of the crotonic acid is less severe in solutions containing alkali salts.

According to the experiments of Ames and Richmond (*Soil Science*, vi, 351) the oxidation of sulphur in the soil in the absence of calcium carbonate is able to bring about an increase in the availability of rock phosphate incorporated with it, but when calcium carbonate is present the effect is very slight. Nitrification of dried blood and ammonium sulphate were also found to have little action in increasing the solubility of rock phosphate in the soil. The solubility of potassium, on the other hand, was found to be increased both by nitrification and oxidation of sulphur (Ames and Boltz, *ibid.*, vii, 183). The results obtained indicate, however, that the liberation of the potassium was not brought about by the direct action on the insoluble potassium compounds of the acidity developed by the nitrification and sulphofication processes, but rather by the action of such salts as ammonium sulphate and calcium nitrate, which are formed as a result of the acidity. Sulphates added directly to the soil or formed by the oxidation of sulphur are also held by Miller (*Jour. Agr. Research*, xvii, 87) to act directly in promoting the growth of plants and, by stimulating the action of symbiotic bacteria, to be able to bring about an increase in the nitrogen content of leguminous crops.

In alkali studies carried out at the Utah Experiment Station, Harris and Pittman (*ibid.*, xy, 287) have observed that the toxic action of these salts on plants is influenced by the soil conditions under which the crop is grown. As due consideration was not given to this phase of the problem in previous work on the subject, experiments were made to determine with more exactness the quantities of the various salts that inhibit plant growth under different conditions. It was found that loam soils are more tolerant of alkali than either sand or clay; that increasing the moisture content of a soil up to a maximum that will produce good crops increases resistance to alkali; and that organic matter increases the resistance to alkali when the soil containing it is given sufficient moisture, but when present in large quantities, organic matter decreases the resistance if the moisture supply is low. As a practical outcome of these observations it is suggested that soils in which alkali reduces crop yields should be kept as moist as compatible with plant growth, and that manure or other organic matter should prove beneficial especially in the case of soils high in alkali carbonate. A similar conclusion with respect to the inhibiting action of stable manure has also been reached by Lipman and Gericke (*Soil Science*, vii, 105) from a study of the practical utility of this material as an ameliorant for alkali soil.

Conner (*Jour. Agr. Research*, xv, 321) reports that the measurable acidity of acid soils varies to a large degree under different conditions of moisture and aeration, and that these variations are due to chemical rather than physical changes in the soil. The freezing-point method developed by Bouyoucos and McCool for measuring the concentration of the soil solution (*A. Y. B.*, 1918, p. 655) has now been developed by Bouyoucos, (*ibid.*, 331) to measure also the absolute salt content of soils. By applying this method to a comparative determination of the absolute salt content of different soils, values were obtained which varied with the rainfall, the temperature and rate of evaporation, the season of the year, the cultural conditions, etc., and it is accordingly pointed out that unless these

factors are taken into consideration in the collection of soil samples erroneous conclusions will be, and have been, drawn as to the comparative salt content of different soils.

Fertilizers.—The new developments that have taken place in the production of fertilizers have followed more or less indirectly as a result of the extensive preparations made in this country during the war for the manufacture of explosives, which required many of the raw materials used in the fertilizer industry. The programme decided on by the Government for adding to the nitrogen supply called for the erection of five nitrogen-fixation plants. At the signing of the armistice one of these plants using the cyanamide process was successfully completed. A second plant using the Haber process was completed but did not operate successfully. The remaining plants, of which one was to produce nitrogen by the Bucher process (*A. Y. B.*, 1917, p. 609) and the others by the cyanamide process, were only partly completed, and all construction work was at once stopped (*White. Jour. Ind. and Eng. Chem.*, xi, 231). Operation of the two completed plants is at present suspended pending the outcome of extensive investigations now being conducted by the War Department in co-operation with the Bureau of Soils with a view to determining the most efficient means of establishing these plants on a peace basis for use in the production of fertilizer materials.

The production of potash salts in this country during 1918 amounted to 52,135 tons, as compared with 32,573 tons in 1917 and a pre-war production of only about 1,000 tons. The principal sources from which the supply of potash was obtained were natural brines, kelp, alunite, organic wastes, and dust from cement mills and blast furnaces (see also *Industrial Chemistry*, *infra*; and XVI, *Agriculture*). With the signing of the armistice all kelp plants were closed with the exception of the experimental plant of the Department of Agriculture (*A. Y. B.*, 1916, p. 626). This was designed for determining the best method of processing kelp for the extraction of potash salts with the simultaneous recovery of other valuable products. In-

vestigational work on the commercial preparation of different by-products is still in progress (Turrentine and Shoaff. *Jour. Ind. and Eng. Chem.*, xi., 864).

The production of potash from Searles Lake in 1918 amounted to about 20 per cent. of the total for the country. Unlike any other known potash deposit, the salts from this lake contain a relatively high percentage of borax, amounting in the crude salt to about 50 per cent. of the potash. In 1918 a considerable quantity of potash from this source was placed on the market which contained as much as 20 per cent. or more of borax. Injurious effects on crops to which fertilizers containing Searles Lake potash had been applied have been reported in different parts of the country. From analyses recently made, in the Bureau of Soils, however, the claim is substantiated that a successful process has now been developed for removing borax and that potash salts may now be obtained which contain less than one per cent. of borax.

A recent contribution to the use of sodium as a substitute for potassium in fertilizers is furnished by the experiments of Hartwell and Damon (R. I. Agr. Exp. Sta. Bull. 177), which were carried out in the field with 15 different crops covering a period of 13 years. Both elements were applied as carbonates and as chlorides and in connection with two different amounts of lime. It was found that where there was an insufficiency of potassium, sodium was generally useful, and the results indicated that the sodium acted directly as well as indirectly in bringing about the favorable results observed. It has also been suggested by True, Black, and Kelly (*Jour. Agr. Research*, xvi, 15), as the result of a study on the ash absorption of spinach, that sodium may perform some functions also performed by potassium, and that a partial replacement of potassium with sodium in fertilizers might therefore be possible. Greaves and Carter (*Soil Science*, vii, 121) are of the opinion that the favorable results obtained under certain conditions with such soil amendments as sodium chloride, the sulphates of magnesium, calcium, and iron, and manganese salts are not due

so much to any direct effect which they may have on the growth of plants as to their indirect action in bringing about an increase in the availability of the phosphorus and nitrogen already present in the soil. As regards manganese, on the other hand, McHargue (*Jour. Ind. and Eng. Chem.*, xi, 332) believes that it has a direct function in the normal growth and development of some plants at least, and it is suggested that some of the benefit to crops resulting from the use of basic slag may be due to the manganese which it contains (cf. also Deatricks, N. Y. Cornell Agr. Exp. Sta. Memoir 19).

To the increased cost of acid phosphate, which was brought about largely by the high cost of sulphuric acid, may be attributed in part the continued growing demand for finely ground raw phosphate to be applied directly to the field. The quantity consumed in 1918 was well over 130,000 tons, as against 90,321 tons in 1917. An analysis of the experimental work that has been done with raw rock phosphate is given by Wagaman and Wagner in Bulletin 699 of the U. S. Department of Agriculture.

The practicability of inoculating soils with non-symbiotic nitrogen-fixing bacteria of the azobacter group has of late attracted considerable interest, and during the past year or two a number of concerns have endeavored to place on the market so called "bacteriaized fertilizers" which are claimed to bring about a fixation of nitrogen in the soil without growing legumes. Investigations made by Emerson (R. I. Agr. Exp. Sta. Research Bull. 45) indicate that with the proper conditions it should be possible profitably to inoculate soils with azobacter, but little evidence is given in support of the claims made for the commercial non-symbiotic cultures that have so far been placed on the market. Cf. Dumas, *Am. Fertilizer*, 1. 78).

Plant Chemistry.—A line of investigation which has attracted for some time more than usual interest and which offers possibilities of practical application has to do with the treatment of plants with chemical compounds other than the recognized chemical fertilizers. By this treat-

ment positive results have frequently been obtained in stimulating plant growth, in promoting seed germination, in destroying noxious growths, and in hastening the ripening of fruits (*A. Y. B.*, 1913, p. 656). A further application of this method of treatment is suggested by the experiments of Curtis (*N. Y. Cornell Agr. Exp. Sta. Memoir 14*), who found that a very marked increase in root growth occurred when woody cuttings were placed in dilute solutions of potassium permanganate. A slight stimulating effect was also observed with a number of other compounds, as manganese dioxide, ferric chloride, and boric acid. Nutrient solutions, on the other hand, were as a rule injurious to root growth in cuttings.

By digesting corn cobs in successive steps with dilute alkali and with dilute sulphuric acid under pressure, LaForge and Hudson (*Jour. Ind. and Eng. Chem.*, x, 925) and Monroe (*Jour. Am. Chem. Soc.*, xli, 1002) were able to recover such products as adhesive gum, crystalline xylose, acetic acid, and crystalline glucose. The xylose recovered amounted to eight to 10 per cent. of the dry corn cobs, and the glucose to about 37 per cent. This process thus offers a possible commercial method of utilizing a material that is now one of the great waste products in agriculture.

Dairying.—Results obtained by Maynard (*Jour. Phys. Chem.*, xxiii, 145) in the course of a chemical study of casein affords evidence that the white color of milk is due to the peptization of tricalcium phosphate by the colloids of milk. A method for the preparation of chemically pure casein has been developed by Van Slyke and his coworkers (*N. Y. Agr. Exp. Sta. Tech. Bull. 65*), who also have made a study of the free and total acidity of sour milk, the coagulation point of casein in sour milk, and the first sign of souring.

The shortage of rennet extract for cheese making during the war has attracted attention to the use of pepsin as a substitute for rennet for this purpose. In experiments made at the Oregon Experiment Station (*Lucas. Bull. 155*) it has been found that the texture of a pepsin-curd cheese is somewhat inferior to that of a rennet-

curd cheese, and that the loss of fat in the whey is greater with pepsin than with rennet. Pepsin, however, has no effect on the flavor and body of cheese; it is cheaper than rennet at present prices, and the yields per 100 lb. of milk are nearly the same for both curdling agents. The conclusion is reached, therefore, that pepsin may be used as a satisfactory substitute for rennet in cheddar-cheese making.

ELECTROCHEMISTRY

ALLISON BUTTS

Electrolytic Refining and Deposition.—Chemical research in electrolytic refining of the leading metals is now chiefly along the lines of recovery and utilization of by-products. A new process of some promise is that of G. A. Guess for the refining of crude nickel (*Trans. Am. Electrochem. Soc.*, xxxv). Iron goes into solution and accumulates, but copper is precipitated continuously by finely divided limestone suspended in the electrolyte. The salt formed by the copper has the composition $2\text{CuO} \cdot 2\text{NiO} \cdot \text{SO}_3$, and it settles to the bottom of the tank together with the CaSO_4 formed in the same reaction. The cathode is enclosed in a canvas bag, to ensure freedom from mechanical contamination by impurities, and receives a very pure deposit of nickel. The electrolyte consists of nickel-sulphate solution containing 5.5 to 6.5 per cent. nickel; it is maintained at a temperature of 40 to 50° C. A small amount of glue is used in the electrolyte. A current density of 143 amp. per square metre gives a good deposit, the voltage being about two. The mud accumulating in the bottom of the tank is reduced by fusion to a nickel-copper matte, which is dead-roasted, reduced, cast into anodes, and used in copper-refining baths for recovery of the copper and also of its nickel in the form of sulphate.

Electrolytic deposition of zinc is being studied with a view to widening its field, commercial success thus far, although of great magnitude and importance, having been confined to certain ores, owing to the trouble caused by impurities. Application of the process for the recovery of zinc after

the smelting of zinc-copper ores is one of the problems being worked on. More and more electrolytically deposited copper is being produced from leaching processes. The successful project of the New Cornelia Copper Co. at Ajo, Ariz. (see also XVII, *Copper*), has been described and discussed in detail (*Bull. Am. Inst. Min. Eng.*, No. 146, 449; see also No. 153, 1929).

Electrolytic Chlorine.—In connection with its spring technical meeting, held in New York, the American Electrochemical Society presented a symposium on released war information. Some of the chief papers dealt with the manufacture and use of chlorine and chlorine compounds, the production of which had to be enormously extended for war uses. There are several types of chlorine-caustic soda electrolytic cells, the one adopted by the Government for the huge plant at the Edgewood Arsenal, Maryland, being the Nelson. This apparatus, now on the market as a standard piece of equipment, has been described by C. F. Carrier, Jr. (*Trans. Am. Electrochem. Soc.* xxxv). The cell consists of a rectangular steel tank of $\frac{1}{4}$ -in. plates. In it is mounted a U-shaped cathode plate of perforated steel which acts as the form of the anode compartment and supports an asbestos diaphragm. This cathode plate and the ends of the U-shaped anode compartment are closed by cement mortar. An inverted rectangular box of slate slabs closes the top of the anode compartment and supports the specially treated graphite anode blocks. Level of liquid is controlled by a simple feeding device. An atmosphere of steam is maintained in the cathode chamber, keeping the caustic soda from clogging the pores of the diaphragm and insuring a uniform flow of brine. The heat from the steam also lowers electric resistance of the cell. The commercial guarantee is that when operated at the rated 1,000 amp. and supplied with not over 120 lb. of sodium chloride, each cell will produce 60 lb. of chlorine and 68 lb. of caustic soda per 24 hours. This means an ampere efficiency of 86 per cent. based on the chlorine output. The voltage drop for 60 cells in series, including con-

nections, will average 3.7 volts. The caustic liquor outflow contains 10 to 12 per cent. NaOH and 14 to 16 per cent. NaCl, with no chlorates and practically no hypochlorites. The purity of the chlorine is 99+ per cent. The Edgewood plant (S. M. Green, *Chem. and Met. Eng.*, xxi, 17) installed 3,500 cells, to produce 100 tons of chlorine per day. The electrical installation developed 20,000 kw. at 60,000 volts. Each circuit had 74 cells. The problem of making use of the chlorine equipment during peace times is now a great one at many plants. The principal uses of chlorine compounds outside of warfare are embraced in bleaching, disinfecting, and in organic solvents, and as yet little progress appears to have been made in extending the use.

Electroplating.—A valuable article on zinc plating (*Metal Ind.*, xvii, 325) states that for most purposes zinc plating is more economical and better than sherardizing or dipping. Solutions are made of varying amounts of ZnSO_4 , $\text{Al}_2(\text{SO}_4)_3$, and SnCl_2 . Cyanide solutions are used for articles having threads, indentations, etc., but are not satisfactory on gray or cast iron. They can, however, be used on wrought iron, stampings, and steel. In cleaning articles before plating the best method is to use an electrolytic process, a solution of eight ounces of sodium hydroxide per gallon of water being recommended. After cleaning thus for a minute the articles are rinsed in hot water and placed in a pickling bath of niter cake. Automatic plating, using a very large anode surface, can frequently be used to advantage. For making zinc-cyanide solutions of desired concentration it has been found more economical in most cases to use ZnO , NaCN , and NaOH instead of Zn(CN)_2 .

A non-electrochemical process for automatic copper plating on iron is now being used as a substitute for electroplating (J. W. Richards, *Bull. Am. Inst. Min. Eng.*, No. 145, 27). The plating is applied to the sheet in the form of a liquid mixture by means of rolls, the sheet being then automatically carried on a link-belt conveyor through furnaces maintained at a temperature well above that of

molten copper. Thus the metal is applied to the sheet while cold, and the iron cannot oxidize during the heating stage. The liquid mixture contains CuO and precipitated copper in a Mexican crude oil, the oil serving to reduce the oxide during the operation of the process.

Electric Furnaces.—The use of the electric furnace increased very greatly during the war and is being still further extended. New types are being developed and new applications of the old types are being made, while the number of furnaces in use grows steadily. Much work is being done on the induction type, which has not yet developed as much as was expected, but the future of which is considered very bright. The advantage of dispensing with the electrodes is an important one. The increasing use of electric furnaces for steel castings is noted (W. E. Moore, *Trans. Am. Electrochem. Soc.* xxxv; *Iron Age*, cii, 1206); the use of an acid-lined type, so designed and constructed that it is adaptable to basic operation, is advised. Costs under favorable conditions favor the electric over converter castings. Tractor and truck fields provide a growing market for high-grade steel castings, and the demand is also great in the older lines of machine-tool making, agricultural implements, and railroads. (See also XVII, *Iron and Steel*.)

Among the new furnaces is the Greene, of the rolling-cylinder, arc type (*Elec. Rev. and West. Elec.*, lxxiii, 950). The latest design has three electrodes, three-phase current, and a 400-kva. transformer for a three-ton furnace. Steel castings are made with it by a special slag process, the slag being composed of sand and clay or lime, which dissolves the iron oxides, which are in turn reduced by adding powdered coke or ferrosilicon. The elimination of the iron oxides obviates blowholes in the castings. A new type of resistance furnace has been developed by the General Electric Co. for use in heat-treating gun forgings and shrinking the jackets on gun barrels of large calibre. For the former purpose a high-temperature furnace creating a temperature up to 980°C . was used, and for the latter a low-temperature design, up to 510° .

The latter type, which can be applied to any shrinking process, is constructed in sections and has been built up to a depth of 83 ft. The best example is installed in the Washington Navy Yard. The heating unit consists of a calorite (nickel-chromium-iron alloy) ribbon mounted on a cast-iron supporting plate and insulated therefrom by a refractory material. In the high-temperature form a heavy calorite ribbon is supported on the inner walls, the insulators forming a part of the walls and holding the ribbon firmly in place at the highest temperatures, which could not be done by iron supports. (*Iron Age*, ciii, 1502).

Owing largely to the shortage of graphite crucibles during the war, the development of the electric furnace for brass was greatly stimulated. This research is continuing and promises to be of great value in the brass industry. Of the four types of electric furnace in general use, only two are suitable for alloys high in zinc. The vertical-ring induction furnace is of high efficiency but does not seem to be flexible enough for general foundry work. The indirect-resistance, indirect-radiation furnace reverses this advantage and disadvantage. Electric crucible furnaces are reliable and effective but give little hope of profitable application in this field except under special conditions (H. M. St. John, *Chem. and Met. Eng.*, xix, 321). The Bridgeport Brass Co. has in operation a total of 800 kw. in Ajax-Wyatt single-phase 60-cycle induction furnaces, the largest unit having a capacity of 500-600 lb. per hour. They have melted and poured six to nine pounds of brass per kilowatt-hour. Linings are used for 2,000 heats. The furnaces heat the bath from within and stir automatically. Whereas oil-fired furnaces are limited to 1,000 lb. of brass, there are now in operation Bennett three-phase brass furnaces with capacities up to five tons each. In general, quality of brass and losses of zinc are more important considerations than cost of power (*Elec. World*, lxxiii, 741). Special furnaces, as those of the rocking type, are also being developed for brass. Of the resistance types, the Booth rotating brass furnace has

capacities up to two tons. The furnace rotates at a speed of two revolutions per minute. The metal is brought to a pouring temperature in one hour or less. The furnace gives a very small shrinkage and an electrode consumption of only three pounds per ton. A ton of metal is melted and poured in $7\frac{1}{2}$ to eight hours. (T. F. Baily, *Metal Ind.*, xvii, 316.)

Electric-Furnace Manufacture of Ferroalloys.—New installations of electric furnaces for ferroalloys are being planned, and it is evident that this branch of the industry will increase in importance, although during 1919 it was temporarily set back by lack of demand for ferroalloys following the armistice. The investigation of the Bureau of Mines with regard to the electric smelting of domestic manganese ores indicated that although electric smelting of mangiferous slags and low-grade ores is unlikely to be profitable in times of normal costs and prices, it is metallurgically possible and could be done profitably in times of high prices. E. S. Bardwell (*Chem. and Met. Eng.*, xix, 749) investigated the influence of size in electric ferromanganese furnaces. He found that in the case of smaller furnaces, operating at low voltages, the slag loss was low and the volatilization loss almost nil. The larger furnaces operating at higher voltages showed increased loss of manganese in the slag and greatly increased volatilization. The effects in the latter case were ascribed to irregular furnace working, excessively high local temperatures, and the formation of carbide and graphite accretions beneath the electrodes. Substituting coke for a part or all of the coal used for reduction in the charge, thereby decreasing the resistance of the charge and making possible a lower operating voltage, is recommended in such cases. Regarding the elimination of sulphur and phosphorus (*ibid.*, xx, 245), it has been shown that in ordinary practice 98 per cent. of the sulphur is eliminated, whereas a little over half of the phosphorus is retained in the metal. About one-third of the total phosphorus is carried off mechanically. Ordinarily the ore must carry less than 0.18 per cent. phosphorus in order to have less than the maximum allowance

of 0.25 per cent. in the ferromanganese produced.

Storage Batteries.—Recent commercial developments in storage batteries have been toward small units, *i. e.*, isolated lighting units, automobile batteries, and small batteries for other purposes. No types have been developed using plates other than the lead or the nickel-iron elements. All changes have been along the lines of construction details and the method of mixing pastes. Systems of 32 volts have been adopted as standard for isolated battery plants. Applications to automobile-starter service have brought about high rates of discharge previously considered next to impossible with proper life of the battery. The iron-nickel alkaline battery has not been applied to electric starters owing to its high internal resistance and its low capacity at low temperatures. (O. W. Oetting, *Jour. Cleveland Eng. Soc.*, xi, 95.)

INDUSTRIAL CHEMISTRY AND CHEMICAL ENGINEERING

JAMES R. WITHROW

Conditions in the Chemical Industry.—War-time demands expanded chemical industries perhaps more than any other. Cessation of hostilities and abrogation of Government war contracts left us with ample plant facilities and trained labor to supply most of the country's demand for chemicals. In a time of price inflation from various causes we have here the uncommon spectacle of a great industry prepared and fit to produce all that can be asked of it for the business of peace. It is to be regretted that advantage is not always being taken of this condition and that competing plants are being deliberately shut down to maintain prices at war levels by curtailing production, even when war prices were 200 and 300 per cent. greater than in the best of good times in the decades before. The country during the war developed an asset in the chemical industries from which it should find some way of enforcing relief in these times of wild price boosting. There is an overproduction of everything entering into white-lead manufacture. We have a doubled or tripled sulphuric-

acid supply. Why cannot fertilizers be made cheaper than ever before? Why cannot we benefit by the enormous overproduction of caustic soda for soap, and of chlorine for bleaching textiles, paper, solvents, and the like? The mere reply of higher wages will not do, for it is only one factor. We are in better material shape than ever before for the production of the basic fundamentals of the chemical industries—sulphur, acids, alkalies, salts, and coal-tar derivatives. We have 22 plants for making synthetic phenol (and not one in operation), millions of gallons of coal-tar distillates developed, explosives without limit. War chemical plants of all sizes and equipment have gone to the auction block, and without doubt foundations are being laid by the larger organizations for greater production to come. All these things act as a partial or temporary check on invention and development, but there are many lines in which applied chemistry is necessary which are struggling to reassert themselves now that the war industries have subsided. These are keeping up development, so that we need not fear stagnation in general advancement in industrial chemistry or even in chemical engineering, though this seemed possible at one time. (See also XVIII, *Manufactures*.)

Industrial Gas Masks.—War gas masks are fatally useless for most peace-time uses. Nevertheless, one of the assets accruing from the extensive research work carried on during the war has arisen in connection with the protection of workmen against fumes and poisonous dusts. Col. George A. Burrell, who was in charge of the Research Division of the Chemical Warfare Service, U. S. Army, had been interested for years in the problem of dangerous gases in coal mines. It is natural, therefore, that upon returning to peace activities he should at once apply to the saving of human life and the protection of health in the industries the enormous volume of experimental data which had been acquired in the war research on gas and smoke warfare.

The war gas problem, so far as defense was concerned, was originally related to the finding of suitable absorbents for the gases that were used

by the enemy. These means of defense were made increasingly effective, beginning with the astonishing feat of the British in delivering 3,000,000 masks to Marshal French on the western front on the fourth day after the first gas attack in April, 1915. To frustrate these defenses built up against gas, the enemy later attempted to gain their military objectives by the use of toxic or sneeze-producing materials, such as fogs or smokes, in which the chemicals were distributed as fine solid particles. It has always been an industrial obstacle that the absorption of a fog or cloud of suspended solids is very difficult compared with the ease with which most gases may be absorbed. Gas particles are supposed to repel one another and ceaselessly bombard the absorbent material, so all that is necessary for proper absorption is to supply adequate surface to receive the bombardment of the gas particles. With fog or smoke the conditions are entirely different. The solid particles are inert, have little of the motion of a true gas, and consequently cannot be readily absorbed. Smoke may be repeatedly blown through water with little or no diminution in intensity. Before the researches on gas warfare no adequate means were available in the industries for the protection of workmen against such atmospheric pollution. The Germans' application of this fact in their military operations compelled us to develop means of filtering these solid particles or clearing the air of smoke or fog. The principle had already been developed in the industries in the contact sulphuric-acid plants, and it was successfully extended to the gas mask by filtering the air edgewise through packs of filter-paper layers and otherwise. Hence we now have two types of mask for use in industrial work, utilizing, respectively, chemical action or absorption and mechanical filtration. The mechanical filter has been found an adequate protection for the use of firemen.

One of the new forms of absorbent mask is that for protection against carbon monoxide, a highly dangerous gas commonly occurrent in the gun turrets of battleships during firing and at times around blast and other

furnaces. The mask material used oxidizes the carbon monoxide to harmless carbon dioxide; it is probably such a chemical substance as highly active manganese dioxide, perhaps impregnated with some activating agent like a nickel or cobalt salt. The whole equipment with its canister, harness, case, face piece, exhalation valve, and connecting tube has been reduced to $3\frac{1}{2}$ lb. in weight, can be put on in a few seconds, is comfortable, and does not handicap movement. The face piece is an adaptation of the French officers' smooth Tissot mask, which was to have been used by our own men had the war continued, and the canister portion an adaptation of the early English canister, upon both of which much experimental work was done in this country. The single canister will last for four hours continuously against carbon monoxide. Masks are provided also for ammonia, sulphur dioxide, acid fumes, hydrogen sulphide, and other substances. The standard set by the Army gas defense is now available for the protection of every workman, from ice and meat-packing establishments to chemical and explosives plants.

Sulphur.—For a number of years sulphur has been produced in great quantities at Sulphur, La. This sulphur appears to lie under quicksand deposits which made shaft mining impossible. Frasch devised the method of boring wells, casing them as for oil, and forcing superheated water through the casing into the sulphur deposits. Air injector pumps lift the melted sulphur through one of the tubes of the well, delivering it to the surface, where it is received in rectangular boxes of great size built upon the ground. The sulphur is reputed to be 99.9 per cent. pure, being refined in the operation of mining. The original Frasch patent expired some little time ago, but the operating company had taken out auxiliary patents on various operating devices which served to prevent development in adjacent sulphur deposits in Texas. Court decisions during the year have thrown this field open to all comers, so that the deposits developed immediately before the war at Freeport, Tex., now operate without menace. We developed during the war a third

large deposit, discovered after the finding of oil near Beaumont, Tex., which but recently began producing over 1,000 tons of sulphur per day. This will probably prove to be one of the largest deposits of the world, adequate for many years' production. It is not commonly known that at one time during the war our rapidly expanding chemical development produced a sulphur famine. The Government assisted in pushing this third sulphur project, and within nine months, or in March, 1919, the complete plant was turned over to the company, which began operations at the village of Gulf, near Matagorda, Tex., 75 miles west of Galveston. The water used is heated to 300 to 325° F. and is forced into the wells at a pressure of 300 lb. per square inch.

The main requirements for economical sulphur mining are transportation, fuel, and water. Transportation in this case is assured by both railroad and water. Proximity to Texas and Mexican oil fields should give low fuel cost, and water is obtained largely from the adjacent Colorado River. From $3\frac{1}{2}$ to $4\frac{1}{2}$ million gallons of water will be required daily. The fuel cost is possibly the largest expense in the mining of sulphur. A 10,000 boiler h.p. equipment with oil furnaces is installed. The water for mining purposes is taken from the hydraulic systems directly to the feed-water heaters. The exhaust steam from all power units is discharged through these heaters, raising the water to 150° to 200° F. Eight mine-water heaters raise the water by live steam to the required temperature, and 17 large pumps receive the water from the mine-water heaters and discharge it to the wells. As a basis of national defense and economic prosperity this development is of the first order.

Potash.—American potash is still arousing interest. If some protection is given to home material, we will doubtless become independent provided projects under way bear out promises. One of the interesting developments during the year in connection with the production of potash is that in western Utah. Many years ago one of the railroad systems west of Ogden shortened its route across a particular desert upon which not even sagebrush

had been known to grow. There was great difficulty in finding footing through the salt, for the plain was literally a dry lake of crystal salt. It has now been found that a trench four feet deep will find a constant flow of small artesian springs, the water containing about four or five per cent. of potash. About 12 in. of clay are cut through in this operation, and the four operating companies throw this clay up as an embankment beside the trench, thus forming great tanks or reservoirs of many acres in extent. Experience has shown that about 80 in. of evaporation is obtained during the summer months. The residual liquor is treated in vacuum evaporators and the balance of the common salt or sodium chloride precipitated thereby, after which potassium chloride is obtained in any desired purity. The common salt immediately preceding the potassium chloride contains about 14 per cent. of the latter substance, and is serviceable in the sintering of lucite rock for its potash content, this being another project under development in the West. The residual solution after removal of the potassium chloride consists of magnesium chloride which may develop value. (See also *Agricultural Chemistry*, *supra*; and XVI, *Agriculture*.)

Synthetics and Dyes.—The making of synthetics has expanded during the year. Synthetic camphor manufacture has been brought back again by powerful chemical corporations. It was manufactured in this country nearly 20 years ago in connection with one of our early electrochemical developments. The Japanese are credited with stopping this through their ability to lower the price of natural camphor. Now the Japanese appear to encourage high camphor prices. This would give them eventual control of the world's celluloid industry. The answer is synthetic camphor made here. The synthetic product has not shown consistent ability to give proper ageing quality to celluloid. Nevertheless, more than one organization in this country is prepared to furnish a check to those in control of camphor should they squeeze the celluloid industry of this country too hard. Many bacteriological and medical

materials of a chemical character, such as rare sugars, stains, complex organic reagents, and drugs are being made in this country for the first time. (See also *Biological and Food Chemistry*, *supra*.)

The development of the dye industry has continued consistently. One of the effective means of preventing American competition with foreign production was the secrecy thrown around the market demand in this country. The American among a maze of products might spend thousands in money and much time and effort only to find that his perfected product had but limited market. One of the big steps forward during the war was the publication by the U. S. Bureau of Foreign and Domestic Commerce of a compilation of the name, quantity, and value of every chemical imported in 1913-14, and the proportion of each article imported from the different countries of origin. To frustrating the old German trade methods of using our own patent system against us, a serious effort is being made through the Chemical Foundation. This organization has acquired all enemy-alien patent rights and will prosecute as infringers anyone who operates or sells in this country in competition therewith. This will force manufacture in this country. It remains to be seen, however, whether this will not be an obstacle to real invention and development when German patents of doubtful truthfulness are defended by such a quasi-Government organization. (See also XVIII, *Manufactures*.)

Motor Fuel.—An important legacy of the war is the effort to utilize the alcohol which was converted into acetone for smokeless-powder manufacture in war time by introducing into this country the idea of the use of alcohol for motor fuel. Much experimental work has been done, and in the immediate future one of the largest producers of alcohol in the world will place upon the market a product consisting of a mixture of alcohol, gasoline, and benzol. Much benzol is already being used for motor fuel to dispose of the large stocks accumulated for war purposes.

The advantages of this alcohol-gasoline-benzol mixture are understood to

be more power, 30 per cent. faster pick-up than with gasoline, 20 to 35 per cent. more mileage, and no carbon, as shown by tests on cars driven from 3,000 to 10,000 miles, the valves showing merely discoloration. Such carbon as results from the burning of the lubricating oil is of a soft, flaky character which will not harden or pit the valves. No carbon knocking occurs at all. The above results can be obtained with any car having metal floats which have no rubber gaskets in the fuel line. All imported cars can use this mixture without alteration other than adjustment for additional air. In any case the only change necessary is to make the mixture leaner. (See also XX, *Mechanical Engineering*.)

Miscellaneous.—One of the important developments during the war was the increased attention to shipping containers for chemicals of all kinds, an important matter where the danger sometimes involved is considered. Losses to the railroads amounted to as high as \$53,000,000 in a single year during the war. The fact that in 1918 only one life was lost with all the explosives handled is a tribute to the efficiency developed by the Explosives Bureau of the American Railway Association. Another interesting development of applied chemistry has been the way in which railroad research work has far outstripped both state and national endeavor to build up industrial development in various sections of the country. The railroads foresee the reduction in freight due to the coming exhaustion of such natural resources as our forests and utilize other resources to maintain a normal development dependent upon transportation.

A marked tendency, which must ever increase, is seen in the effort better to utilize our chemical resources

in natural gas, petroleum, etc. It is to be hoped that we will find more rational uses for these materials before they leave us forever. The industrial chemist has long thought of oxidizing the methane of natural gas to methyl alcohol or formaldehyde or of its chlorination to chloroform or carbon tetrachloride. We shall see greater activity in these lines. An American war achievement was the production of the noble gas helium from Texas natural gas. Dirigibles with this non-inflammable gas will probably be in commercial service within a year. Low-temperature distillation is a chemical-engineering development of great promise in the chemical and fuel industries.

The extension of war-time prohibition of intoxicating beverages to a permanent peace basis came with a suddenness and decision that has caused many rapid changes in the effort of brewing and distilling plants to change their operations so as to produce other products, such as malt sugar, non-alcoholic beverages, candies, food products, liquid fuel, etc. Great care has been taken in the national law to encourage legitimate non-beverage uses of alcohol in scientific work and in industry.

Publications.—Among the important technical publications of the year may be noted: "Railroad Research Work" (*Chem. and Met. Eng.*, June 1, 1919); "Shipping Containers" (*Jour. Ind. and Eng. Chem.*, July, 1919); "United States Ammonium Nitrate Plant, Perryville, Md." (*Chem. and Met. Eng.*, xx, 320); "The American Dye Industry" (*ibid.*, xxi, 64); "Exhaust Steam at High Pressure" (*ibid.*, Jan. 1, 1919); "U. S. Fixed Nitrogen Plants" (*ibid.*, xxi, 66); "Present Status of Nitrogen Fixation" (*Jour. Ind. and Eng. Chem.*, March, 1919).

PHYSICS

C. E. MENDENHALL

General.—The death of Baron Rayleigh on June 30, 1919, removes the great outstanding figure in theoretical physics of the world. Aside from his broad and fundamentally important theoretical contributions, Lord Rayleigh published a very con-

siderable amount of experimental work, remarkable for the simplicity of the means employed. His *Theory of Sound* has been the classic in its field for two generations. A brief sketch of his career will be found in the *Philosophical Magazine* for Sep-

tember. The greatest general interest attaches to the results of observations made at the time of the total solar eclipse on May 29 to test Einstein's theory of gravitation (see also XXI, *Astronomy*). This theory (see Eddington, "Report on Relativity Theory of Gravitation," *Trans. London Phys. Soc.*, 1918) predicted a radial displacement of stars seen close to the sun's limb amounting to 1.74 seconds of arc. A displacement of half this amount was computed by Eddington by attributing mass to a light ray and working out the effect of the Newtonian attraction of the sun in altering the path of a ray. The announcement at a meeting of the Royal Society in November that the observations agreed with Einstein's prediction was pronounced by some the most important advance in the knowledge of gravitation since Newton's time. On the other hand, others maintain that it has yet to be proved that the observed displacements are due to gravitation and not to the refraction of a solar atmosphere of unexpected extent. A third possibility is that they are due to a hitherto unknown interrelation of gravitational and electrical fields but do not constitute a confirmation of the relativity hypothesis. Although no one at present understands the full significance of the results, they constitute, if further observations confirm them, a most important addition to knowledge. Attention may be called in this connection to a discussion of boundary difficulties of Einstein's gravitational theory by Silberstein (*Philos. Mag.*, Feb.), to the calculation of certain special cases in this theory and their application to the problem of atomic structure by Nordstrom (*Proc. Amst. Acad.*), and to a paper on "General Relativity Theory" by Batemen (*Philos. Mag.*, Feb.).

Atomic structure has been the subject of a number of papers, including those of Stewart (*ibid.*, Oct., 1918) from the physico-chemical standpoint, which is discussed by Jackson (*ibid.*, Aug.), who concludes that although the electronic orbits as originally proposed are unstable, it will probably be possible to introduce stability without destroying the value of the hypothesis. Langmuir (*Jour. Am. Chem. Soc.*,

June) develops a very considerable extension of Lewis's idea of the "cubical atom," in which electrons are distributed in shells with an equatorial plane of symmetry (see also *Inorganic and Physical Chemistry, supra*). Debye and Scherer compute (*Phys. Zeit.*, Nov., 1918) the number of electrons in an atom and the size of the structure. One of the most interesting suggestions is Sir J. J. Thomson's atomic model, a substitute for the Bohr hypothesis, in which radiation takes place according to accepted or "classical" ideas, but the equilibrium positions and periods of the electrons, corresponding to the Balmer series, are determined by the arbitrary introduction of shells of electric force, the inverse-square law being given up. Zehnder (*Verh. Deutsch. Phys. Ges.*, March) elaborates an atomic hypothesis of the ether, and Birkeland (*Philos. Mag.*, Jan.) offers an hypothesis of an anisotropic ether, due to motion, to explain the Michelson-Morley experiment in lieu of relativity. Majorana (*ibid.*), by mounting a source of light on a whirling arm, has experimentally proved that the velocity of light is independent of the velocity of source, at least to within five per cent. The maximum velocity used was 90 m. per second. Birge (*Phys. Rev.*, Oct.) gives a very convenient summary of the various methods of determining h and calculates the most probable value. The close agreement among the various methods remains as an extraordinary fact yet to be rationally accounted for.

Lindemann and Aston (*Philos. Mag.*, May) and Chapman (*ibid.*, July) discuss various possible methods of separating isotopes, *i. e.*, elements, having the same atomic numbers, identical chemical properties, but slightly different atomic weights. This separation presents great difficulties. The statistical mechanics of Brownian movements are discussed by Ornstein in two papers, and also by J. D. Van der Waals, Jr. (*Proc. Amst. Acad.*)

Sound.—Webster (*Proc. Am. Inst. Elec. Engs.*, July) describes his "phone" for producing a simple tone of known intensity and his "phonometer" for measuring the intensity of

sound in absolute units, which have recently been found useful in Canada for studying the transmission of fog signals. The resonance theory of audition is approached from an indirect experimental standpoint by Barton (*Philos. Mag.*, July) in his studies of pendulum resonators, his conclusion being that two resonators (and their corresponding nerves) per octave (100 in all) would suffice to give the observed sensibility for differences of pitch of the ear. The first part of a long memoir by Raman has appeared (*Indian Assoc. for Cultivation of Science*), giving photographic studies of the vibration of instruments of the violin type and the foundations of a mechanical theory of bowing. A lecture of most timely interest is that of W. H. Bragg (*Engineering*, June 13) on "Listening under Water," which gives some of the results, and their application, of the war-time work in submarine detection.

Heat.—There has been considerable theoretical work on specific heats, of which may be mentioned that of Skaupy (*Verh. Deutsch. Phys. Ges.*, June) on mercury, Epstein (*ibid.*, Dec., 1916, but just at hand) on hydrogen, and Reiche (*Annal. d. Phys.*, May) on the heat of rotation of hydrogen. Weiss and others (*Archiv. des Sci.*) in a series of papers have discussed the specific heat of magnetic substances, and White in several papers (*Jour. Am. Chem. Soc.*, Dec., 1918) discusses improved methods for measuring specific heat at very high temperatures, and gives (*Phys. Rev.*, Dec., 1918) results for platinum showing a regular increase in the specific heat from 100° C. to 1,300° C., it being above the value given by Dulong and Petit's law, or the usual theories of the solid state, throughout that range. Gaehr (*ibid.*, Nov., 1918) gives results for the specific heat of tungsten at incandescent temperatures.

Optics and Radiation.—There has been an active revival of interest in the old problem of the scattering of light, largely due to the papers of Strutt (*Proc. Roy. Soc.*, Nov., 1918, and June, 1919), who observed the least amount of scattering in dust-free air, clear quartz being next. A very interesting demonstration of the rotatory power of quartz is afforded by

the scattering of a beam propagated through quartz along the optic axis. Puzzling facts are brought out by his study of the polarization of the scattered light, since pentane, with its relatively large and presumably unsymmetric molecule, polarizes most perfectly, while monatomic argon and helium show the greatest lack of polarization. The influence of the thermal motion of the scattering particles is brought out in articles by Larmor (*Philos. Mag.*, Jan.) and Raman (*Nature*, May 1), and Senftleben and Benedict (*Verh. Deutsch. Phys. Ges.*, April) compare the observed scattering in flames with Mie's theory of turbid media.

Millikan and Sawyer (*Science*, Aug.) give a preliminary account of a new arc method of exciting very short ultra-violet wave lengths in metallic vapors, by means of which they have pushed the limit of what one may call the optical, as distinguished from the X-ray, spectrum from about 600 Angstrom units to about 270 A.u., leaving only a gap of some 250 A.u. between this and the longest observed X-rays.

Ionization potentials and single-line emission (resonance) potentials in metallic vapors and gases are being actively studied by Foote and Mohler (*Philos. Mag.*, June), Foote, Rognly, and Mohler (*Phys. Rev.*, Jan.), McLennan and Young (*Philos. Mag.*, Dec., 1918, and *Proc. Roy. Soc.*, Feb.), Davis and Goucher (*Phys. Rev.*, Jan.), and Horton and Davies (*Proc. Roy. Soc.*, April). Under certain conditions single-line emission and ionization begin at definite (but different) voltages which are connected by the quantum relation $Ve = hn$ with the frequency either of the shortest wave length or the convergence frequency of one of the important spectral series of the element. On the other hand, McLennan (*ibid.*, Dec., 1918) and Hebb (*Phys. Rev.*, Dec., 1918) have shown that under other conditions (mainly increased density of vapor or higher temperature of source of thermions) it is possible to maintain ionization with voltages much below the so-called "ionization potential," which suggests possibly ionization by multiple impacts or the effect of combined electronic and mol-

ecular impacts. From an attempt to excite infra-red lines of Hg (1.014μ), Zn, and Cd, Dearle (*Proc. Roy. Soc.*, Feb.) is led to suggest that the real outermost stable orbit of the mercury molecule corresponds to $V = 1.26$ volts and not 4.9 volts as usually considered, which would be consistent with the observations of low voltage arcs, though he failed to stimulate the line $\lambda = 1.014\mu$, which shows absorption in cold mercury vapor, with less than about five volts. The line emission of iron and other metallic vapors in the carbon tube furnace has been the subject of further discussion by Hemsalech (*Philos. Mag.*, Oct., 1918) and King (*Astrophys. Jour.*, Jan.), the latter maintaining that emission can be produced by temperature alone without the necessity of a potential gradient. The structure of band spectra is discussed by Deslandres (*Comptes Rendus*) and Birge (*Phys. Rev.*, May). White and Bell (*Philos. Mag.*, Oct., 1918) consider atomic number and frequency difference in series spectra. Landé (*Phys. Zeit.*, May) decided from a discussion of the series spectrum of helium that Sommerfeld's model atom fits the observations better than Bohr's, whereas Anslow (*Phys. Rev.*, May) believes he has developed facts concerning atomic-number and series-frequency differences which do not follow either the Bohr or Sommerfeld theory. Those desiring the results of spectrum analysis as related to atomic theory will be interested in Sir Joseph Thomson's lectures reprinted in *Engineering* (March to May). Another useful resumé is that of Bancroft (*Jour. Phys. Chem.*, April and May) on the colors of thin films, and photographic interest attaches to a new yellow dye developed by Mees and Clarke (*Jour. Franklin Inst.*, May), the characteristics of which are greater stability and a sharper cutoff.

The (Stark) effect of an electric field on spectral lines is discussed by Stark in two recent papers. The first, with Hardke (*Annal. de Phys.*, May), deals with the splitting of the lines of the second subordinate (diffuse) series of sodium, copper, silver, and aluminium, the separation for the last named being much less than for the others. The second article in the next

number deals with the relations of the four subordinate series to the Balmer series of hydrogen and similar relations among the series of helium, and discusses the bearing of all of this on atomic theory. Nichols and Howes (*Phys. Rev.*, Sept.) study the fluorescence and absorption spectra of various uranyl sulphates, and are able to pick out certain common characteristics of their very complex structure. In a second paper (*ibid.*, Oct.) the same authors with Wick study the fluorescence spectra of a number of uranyl double acetates and find spectra of the same type, with approximately the same frequency interval between the equidistant bands for all the salts examined. In an interesting article (*Philos. Mag.*, Jan.) the late Lord Rayleigh reviews the arguments for the "structure" and "surface" theories of some brilliant animal colors and concludes that while much remains to be done, the evidence so far is in favor of the "structure" theory. Merton (*Nature*, Oct.) has confirmed Aronberg's measurement of a difference in wave length (0.0043 A.u.) between the principal lines of ordinary and radio lead, and has secured evidence that there may be a radio-thallium, an isotope of ordinary thallium. On the other hand, Duane and Shimizu (*Proc. Nat. Acad.*, June) have shown that the critical absorption frequencies of the "L" series of ordinary and radio lead agree within the limits of experimental error, which, of course, are a much greater percentage of the wave length in the case of X-rays than in the case of light. Twyman (*Astrophys. Jour.* and *Photo. Jour.*, Nov., 1918) describes some of the methods of testing optical surfaces and systems which have contributed to the great development of optical instruments by Hilger & Co. Barton and Browning (*Philos. Mag.*, Sept.) have applied the same experimental method already referred to under sound to the study of a mechanical analogy to color vision, it being found possible qualitatively to reproduce the facts by means of three damped resonating pendulums tuned to correspond to red, green, and violet visual sensibility.

Electricity.—Much of the material considered under the heading of light

might equally well have been discussed under electricity, so closely are the two subjects interrelated, and in this connection a general discussion by Allen (*Jour., Röntgen Soc.*, April) of the electrical changes produced by light will be found interesting. A border-line problem is discussed by Campetti (*N. Cimento*, 1918), who finds that spontaneous ionization occurs in sodium vapor at about 400° C. in the dark, and is closely associated with absorption of the D lines which begins at 430° C. but persists to lower temperatures on cooling. The absorption which appears at a lower temperature under ordinary conditions he attributes partly to photo-electric action on the vapor molecules. Compton and Ross (*Phys. Rev.*, May) study the passage of photo-electrons through thin films and decide that on the average a photo-excited electron can pass through 5×10^{-7} cm. of Cu before losing its ability to escape from the surface.

The electron theory of metals is the subject of two papers by Borelius (*Ann. de Phys.*, Oct. and Nov., 1918) in which he especially considers the changes in atomic fields of force due to temperature and discusses electric and thermal conductivity on the same basis as Debye. Two articles bearing on the size and shape of the electron are given by A. H. Compton (*Phys. Rev.*, July and Sept.), his conclusion favoring a ring shape of diameter 1.8×10^{-10} cm. Page (*ibid.*, Nov., 1918) discusses the fundamental problem of the retardation of a moving electromagnetic mass due to radiation, arriving at conclusions at variance with previous calculations. Bridgeman (*ibid.*, Oct.), gives a very thorough thermodynamic discussion of the Volta, thermo-electric, and thermionic effects.

The problem of the diffraction of electromagnetic ("radio") waves around the earth has been the subject of many papers but is by no means cleared up yet. Progress has been made, however, in a published paper (*Proc. Roy. Soc.*, Oct., 1918) and a later one not yet printed by Watson, who succeeds in obtaining a solution of the fundamental equations which avoids the approximations of some previous authors. Using Watson's

solution, Van der Pol, Jr. (*Philos. Mag.*, Sept.) shows that there are still great discrepancies between the observed and the computed values of the wave intensity, which result he considers strongly to support Eccles' suggestion of refraction by an ionized layer in the upper air. Watson in his second paper, by assuming a concentric conducting layer with a sharp inner boundary, is able to compute values of the wave field of the same order of magnitude as those observed.

The insertion of test electrodes to study conditions at various points in a discharge tube has always given rise to uncertainty, and attention should be called to the method of Van der Pol, Jr. (*ibid.*, Sept.), who places a long discharge tube transversely between the open ends of a Lecher system and by observing the effect on the vibration of the system deduces the conductivity of the gas in the tube. Measurements of the space charge and field strength near the cathode have also been carried out by Brose (*Ann. de Phys.*, May) by observing the electric separation of the hydrogen lines and using predetermined values of the constant of the Stark effect. Schottky (*ibid.*, Dec., 1918) discusses oscillations in various types of circuits, and Epstein (*Verh. Deutsch. Phys. Ges.*, March) gives a mathematical treatment of space-charge effects with a hot cathode between two plate electrodes.

X-Rays.—Dadourian (*Phys. Rev.*, Sept.) confirms Sir J. J. Thomson's observations of X-rays produced by electrons having only a 20-volt drop and finds evidence of characteristic L rays for copper, zinc, and platinum, the latter as long as 31 A.u. The *gamma* lines for seven elements are studied by Stenstrom (*Ann. de Phys.*, Nov., 1918), the lines being all very diffuse but following the Moseley relation between frequency and atomic number. Critical absorption frequencies for 26 elements are given by Siegbahn and E. Jonsson (*Phys. Zeit.*, June), the Moseley relation holding from silver to thallium but not for the remainder. Duane and Hu (*Phys. Rev.*, Oct.) give further data on absorption and emission for rhodium, showing that the critical ioniza-

tion frequency equals the critical absorption frequency to less than 0.1 per cent., whereas the critical absorption frequency exceeds the frequency of the $K\gamma$ emission line by perhaps one-third of one per cent.

The continuous X-ray spectrum is the subject of two papers, by Lilienfeld (*Phys. Zeit.*, Dec., 1918) and Müller (*ibid.*, Nov., 1918), according to which the general distribution of intensity does not vary much for different metals (targets) and the relation $eU = h\nu$ is satisfied for the maximum frequency within a few per cent. The possibility of a measureable refractive index of matter for X-rays is considered by Einstein (*Verh. Deutsch. Phys. Ges.*, June), who hopes the subject may be attacked, possibly by a total reflection method.

Crystal Structure.—A very clear and simple account of a modified Bragg method of using X-rays in the study of crystal structure is given by Hull (*Trans. Am. Inst. Elec. Eng.*), results being given for some 20 common metals and several salts. The comparison of results for magnetic and non-magnetic metals is especially interesting, since it fails to show any characteristic difference between the two. Thus magnetic qualities of metals remain to be accounted for by atomic structure, which is counter to some previous evidence, or else by some characteristic of the crystal structure which cannot be differentiated by X-rays. The former hypothesis is the basis of a paper by Ornstein and Zerneke (*Proc., Amst.*

Acad.), who discuss mathematically the magnetic properties of magnetic doublets arranged in a cubic lattice. Born and Landé (*Ber. Preuss. Acad.*, 1918) also give a theoretical discussion of crystal structure on the basis of the Bohr atom and compare their results with experiment, while Burdick and Owen (*Jour. Am. Chem. Soc.* Dec., 1918) show that the silicon and carbon atoms in the synthetic abrasive carborundum are arranged in face-centered rhombohedral lattices much like diamond.

Radioactivity.—Hess and Lawson (*Archiv. des Scien.*, Dec., 1918) give a redetermination of the number of α particles emitted by radium, and results of similar measurements by a recording method are presented by Kovarik (*Proc. Nat. Acad.*, Nov.). The most important papers are undoubtedly the four by Rutherford (*Philos. Mag.*, June) on the collision of α particles with light atoms, briefly summarized in his Royal Institution lecture (*Science*, Nov. 21), in which are studied the high-speed hydrogen atoms produced by close collision between α particles and hydrogen, oxygen, and nitrogen atoms; the velocity of these high-speed atoms; an anomalous effect in nitrogen atoms due to the impact; and certain peculiarities of the direction of motion of the projected atoms, which suggest that the helium nucleus is effectively a charged disc of diameter 3×10^{-13} cm. (See also *Inorganic and Physical Chemistry*, *supra*.)

THE NATIONAL RESEARCH COUNCIL

C. E. MENDENHALL

Creation and Purpose.—The National Research Council was formed in April, 1916, under the Congressional charter of the National Academy of Sciences, to facilitate the organization of the scientific resources of the country for national defense. Its membership comprised representatives of educational, industrial, and governmental research organizations and laboratories, selected through the co-operative effort of the leading scientific and engineering societies.

War Service.—Immediately after the United States entered the Great

War the Council sent abroad a scientific and technical mission which gathered information on recent developments in the application of science to warfare in England, France, and Italy. As a result of this investigation scientific effort in this country was speedily focussed upon the most important problems, which still demanded attention, such as submarine detection, aircraft detection, sound ranging, signalling methods, and many aeronautical problems. During the remainder of the war, under the chairmanship of Dr. George E. Hale,

the Council acted as the Department of Science and Research of the Council of National Defense, and it sent scientific attachés to the embassies of London, Paris, and Rome for the purpose of facilitating the exchange of scientific and technical information concerning war research and development between those countries and the United States (*A. Y. B.*, 1918, p. 41).

Permanent Reorganization.—At the request of the President of the United States the Academy after the armistice undertook the reorganization of the Council to put it on a proper peacetime basis. The primary function of the Council is to correlate and stimulate scientific investigation, to initiate new enterprises, and to consider and further the application of the results of research and the extension of research methods. It took part in the formation of the International Research Council at Brussels, in July, 1919, which has similar functions for the international aspects of science and technology and is the American representative of the international body. Under the International Research Council international unions are already organized in astronomy, geophysics, and pure and applied chemistry.

The administration of the Council as a whole is in the hands of an executive board having a circulating membership representative of all of the interests involved, which elects the general administrative officers, a chairman and a secretary, for terms of one or two years. The Council is organized in divisions of two types, general and scientific or technical; a majority of the members of each of the scientific and technical divisions are nominated by the leading national societies in the various fields, the Council thus becoming a representative and correlating body with a circulating membership. Each technical division has a chairman giving his entire time to the work, generally resident in Washington; the chairmen are elected by the respective divisions, usually for a term of one year. The reorganization has just been com-

pleted, and the divisions are beginning their new activities, which include the preparation of a variety of research surveys in various fields, the formation of committees to carry out special researches, the launching of a project for the preparation of critical tables of chemical and physical constants, and the administration of the new National Research Fellowships recently established through the generosity of the Rockefeller Foundation for the promotion of research in physics and chemistry.

The present organization of the Council, which is now housed at 1201 16th Street, Washington, is briefly as follows:

Chairman of the Council.....	James R. Angell
Secretary of the Council.....	Vernon L. Kellogg
A. DIVISIONS OF GENERAL RELATIONS:	
Chairmen	
I. Government Division, C. D. Walcott	
II. Division of Foreign Relations,	
.....G. E. Hale	
III. States Relations, J. C. Merriam	
IV. Educational Relations,.....	
.....Vernon L. Kellogg	
V. Research Extension,.....	
.....John Johnston	
VI. Research Information Service,	
.....R. M. Yerkes	
B. DIVISIONS OF SCIENCE AND TECHNOLOGY:	
VII. Division of Physical Sciences,	
.....C. E. Mendenhall	
VIII. Engineering,.....C. A. Adams	
IX. Chemistry and Chemical	
Technology,.....W. D. Bancroft	
X. Geology and Geography,.....	
.....E. B. Mathews	
XI. Medical Sciences, H. A. Christian	
XII. Biology and Agriculture,.....	
.....C. E. McClung	
XIII. Anthropology and Psychology,.....W. V. Bingham	

The permanence of the National Research Council has just been assured by a grant of \$5,000,000 from the Carnegie Corporation, to be used as an endowment; a portion, however, is to be devoted to the erection of a building in Washington for the Council and the National Academy of Sciences. The ground for this building has been provided by generous individual contributors.

XXIV. THE BIOLOGICAL SCIENCES

ORGANIC EVOLUTION

H. S. JENNINGS

General.—The year has seen great activity in genetic and evolutionary studies. The reappearance of the German journals in America shows that work along these lines continued actively in Germany during the war; some advances in our knowledge from this quarter will be mentioned herein, though made before 1919. A new Dutch journal for genetic and evolutionary studies, with the title *Genetica*, has been started at The Hague by Lotsy. In connection with the German *Zeitschrift für induktive Abstammungslehre*, a series of monographic studies has been inaugurated with the title *Bibliotheca Genetica* under the editorship of Baur.

The year 1919 is particularly marked by the appearance of two solid and extensive works devoted to conscious, long continued study of the genetic relations and the factors of evolution in particular organisms. These are the posthumous work of Charles O. Whitman, edited by Oscar Riddle, and W. L. Tower's study of evolution in the potato beetle. Whitman's work is a study carried on for years on heredity, variation, sex, and the factors of evolution in the pigeons, an investigation interrupted by Whitman's death in 1910. The work has been continued and prepared for publication by Riddle, and is now published in three quarto volumes with magnificent illustrations by the Carnegie Institution (*Orthogenetic Evolution in Pigeons*, Publ. No. 257). One volume deals with the characteristics, relationships, phylogeny, and method of evolution in the pigeons, another with heredity and sex in hybrids, and the third with the behavior of pigeons from the evolutionary point of view. Tower's volume, in continuation of a previous work published in 1906, is likewise

published by the Carnegie Institution (*The Mechanism of Evolution in Lepidotarsa*, Publ. No. 263). It is an extensive study of the species of potato beetles under natural conditions, of the normal heredity and variation in matings between the species, and an experimental examination continued with extraordinary singleness of purpose for many years of the results of isolation and transference to changed environmental conditions. The concrete conclusions reached by these two investigators are mentioned under the appropriate topics below.

In addition to these a number of other works on genetics and evolution have appeared since our last review. J. S. Adami in *Medical Contributions to the Study of Evolution* (New York, 1918) treats the problems of genetics and evolution from a medical standpoint. J. M. Macfarlane in *The Causes and Course of Organic Evolution: a Study in Bioenergetics* (New York, 1918) gives a general and philosophical discussion of evolution. H. S. Jennings in *Life, Death, Heredity, and Evolution in Unicellular Organisms* (Boston, 1919) summarizes our knowledge of these matters in the unicellular organisms, and compares in general chapters the phenomena here with those in higher organisms, with general conclusions. T. H. Morgan publishes *The Physical Basis of Heredity* (Philadelphia, 1919), a new work on the mechanism of inheritance. H. F. Osborn publishes *Equidae of the Oligocene, Miocene, and Pliocene of North America* (New York, 1918), an extensive illustrated paleontological work on the ancestry of the horse in America.

There has been much discussion, prompted by the war, of the relation of genetic problems to human society. Articles on this question will be

found in the *Journal of Heredity*, as well as in some of the popular magazines. Popenoe and Johnson have published *Applied Eugenics* (New York, 1918), a general treatise on this subject, looking toward radical measures. Many German articles and books along these lines are announced, but they have not yet been available in America. Davenport (Carnegie Inst., Wash., Publ. No. 259, 1919) has published an extensive study of heredity and development of naval officers.

Heredity and Variation.—A great number of reports of investigations of heredity and variation have appeared in the technical journals, both in America (*Genetics*, *Journal of Experimental Zoölogy*, and elsewhere) and abroad. Many of these are of much interest for concrete problems, but here can be mentioned only such as mark a change or a forward step in the position of science on this subject. The results of the work done on biparental heredity fall generally into the scheme of Mendelian inheritance, that is, the dependence of characters on separable substances ("genes") located in the chromosomes and following in their distribution the distribution of the chromosomal substances, resulting in the "Mendelian rules" of inheritance. Phenomena earlier supposed to be unconformable to this schema continue to drop into place within it as knowledge advances. Of much significance are the changes in the attitude of Castle and of Tower on this matter. Castle's work showing the effects of selection on coat color in the rat has long been the outstanding evidence for heredity unconformable to the Mendelian schema—for blending inheritance, for "contamination" of genes, for quantitative alterations in single genes. Castle now admits (*Proc. Nat. Acad. Sciences*, April, 1919) under the compulsion of his own crucial experiments that the results of this work on the rat fail into the typical Mendelian schema. Tower began his work noted above with a most hostile attitude toward the Mendelian schema but concludes (p. 181): "In my experience this Mendelian reaction has thus far stood the test of the most hostile treatment I could give it, and everywhere it has proved to be certain and precise, correct." He found

no blending inheritance or other phenomena incompatible with Mendelism. The disappearance of Castle's results on the rat from its rôle as opposing Mendelism, with Tower's similar change of view, leaves Mendelism in almost complete dominance of the field of inheritance. In the posthumous work of Whitman (see *supra*) the opinion expressed that Mendelian inheritance is less common than blending inheritance is largely deprived of its significance by the fact that the work was done long before the recent demonstrations that such supposed blending inheritance really conforms to the Mendelian schema.

Pascher (*B. r. deutsch. Bot. Ges.*, June 27, 1918) shows that in a unicellular organism, *Chlamydomonas*, conjugation between diverse parents results in the appearance among the offspring of a number of diverse forms, as expected on the Mendelian schema.

Tower emphasizes the evidence that, just as it has been shown that there are no "unit characters" in any rigid sense, since any character on sufficient analysis turns out to be dependent on many genes, so also there are strictly no "unit factors" or unitary genes, but only substances on which depend the appearance of later characters, these substances holding together to give the effect of units, or undergoing disintegration in various ways, depending upon the conditions.

A controversy on the location and arrangement of the genes has been in progress in the *Proceedings of the National Academy of Sciences* under the leadership respectively of Castle (February, 1919) and Morgan (May, 1919). It appears hardly to have reached a stage permitting the statement of conclusions.

The work on *Drosophila* at the Columbia University Laboratory, by Morgan, Sturtevant, and Bridges, continues to yield results of fundamental interest. An extensive volume has been published by the Carnegie Institution (Publ. 278), devoted mainly to the unified treatment by Bridges and Morgan of the characters that follow the second chromosome of *Drosophila*, and numerous other special studies of particular characteristics have appeared. Of general interest are the

phenomena of "deficiency" studied by Mohr (*Genetics*, May) and by Bridges (*Jour. Gen. Physiol.*, July 20): a certain number of genes are lost entirely from the chromosome, or reduced to an ineffective condition, and these are genes that form a continuous series in the linear diagrams of the chromosomes. These facts are thus readily interpreted on the theory that the genes are located in linear series; a short section of the linear chromosome appears to have been nullified. Sturtevant (*Carnegie Inst., Publ.* 278) contributes an important detailed study of inherited variations in cross-over ratios, showing that the amount of crossing over depends on the nature of the stock worked with, and particularly that in certain cases crossing over is frequent between two chromosomes from the same stock, but very rare between chromosomes from different stocks. All these facts are compatible with the theory of linear arrangement of the genes, but show that many things besides their actual distances apart determine the amount of crossing over; so that the distances apart of genes on the common linear figures cannot be taken to represent actual relative distances.

Mating and Sex.—Calkins (*Jour. Exp. Zool.*, Oct. 5, 1919) gives the first experimental demonstration for any unicellular organism (*Uroleptus*) that conjugation results in rejuvenescence (increased reproductive power). In many infusoria it has been shown that the old active cell nucleus is replaced at intervals by a reserve nucleus, independently of conjugation, thus keeping the reproductive power at its height ("rejuvenescence"). Calkins finds that this replacement without conjugation likewise results in rejuvenescence in *Uroleptus* (see also *Invertebrate Zoology, infra*). This replacement occurs at conjugation, along with an exchange of parts of the nuclei between the two mates. Since the rejuvenescence occurs equally without mating, it is clear that the distinctive effect of mating itself is not rejuvenescence. What is the distinctive effect of mating is indicated by the work of Pascher above cited and by earlier work, showing that conjugation results in biparental inheritance and

the appearance of hereditarily diverse forms. In many infusoria it has been shown that disturbing phenomena in conjugation prevent any recognizable rejuvenescence after its occurrence. These matters are discussed in full in the book of Jennings noted above.

In the Whitman-Riddle study the volume dealing with sex presents evidence that the sex of the offspring depends upon the metabolic condition of the parent and upon the chemical constitution of the egg, conclusions earlier elaborated by Riddle and mentioned in our last review (*A. Y. B.*, 1918, p. 675). Many other papers continue to show the Mendelian inheritance of sex, based upon the distribution of a particular chromosome; the evidence in this direction is summarized in the book of Morgan noted above. Morgan also contributes (*Carnegie Inst. Wash., Publ. No.* 285) an experimental paper on the production of the secondary sexual characters, with a review of this entire field. In mammals it is clear that the secondary sexual characters largely depend upon secretions produced by the primary reproductive glands.

Morgan and Bridges (*Carnegie Inst., Wash., Publ.* 278) present an exhaustive study of the origin of gynandromorphs (individuals male in one part of the body, female in other parts), based largely on their researches on *Drosophila* but reviewing the entire subject. For *Drosophila* the evidence appears demonstrative that the gynandromorphs are due to the accidental elimination of one x-chromosome from some of the cells of a developing female (containing normally two x's), thus converting them into male cells.

Method of Evolution.—The posthumous work of Whitman presents evidence that led the author to conclude that evolution takes place by gradual and continuous change and that it is orthogenetic, that is, that it follows definite trends in particular directions, largely predetermined by the nature of the organism, and that movement in the reverse direction is impossible. These conclusions are based on three lines of evidence obtained from the study of the color pattern in the pigeons, particularly

the dark bars on the wing. (1) Some species of pigeons have the wings covered uniformly with dark chequers, others have only two bars of color at the rear edge, and all intermediate conditions are found. (2) Selection for many generations permits progress to be made toward a gradual reduction of the amount of pigment in the chequers, and this is always from before backward, resulting in the production of isolated bars from a chequered condition, etc.; whereas change in the reverse direction cannot be brought about by selection. (3) In the development of the pattern in the individual the same series of stages is traversed from infancy to maturity, never the reverse one. This evidence beyond doubt presents possibilities for other interpretations, at least in details, based on work done since Whitman's death. The author's own interpretation is based largely on his unconditional acceptance of the law that ontogenetic processes repeat phylogenetic ones. Whitman concludes (p. 35): "The orthogenetic process is the primary and fundamental one. In its course we find unlimited opportunities for the play of natural selection, escape the great difficulty of incipient stages, and readily understand why we find so many conditions arising and persisting without any direct help of selection." Whitman observed in the pigeon a number of conditions which he considered the result of mutation, but he holds that mutations have had little part in actual evolution.

Tower finds that in a given species of potato beetle the "population" consists, as in other organisms studied from this point of view, of many hereditarily diverse biotypes that are constantly interbreeding. As in most other cases studied, selection based on slight or quantitative variations within a single biotype has no hereditary effect. Mutations occur at times. Tower distinguishes three types: (1) De Vriesian mutations; (2) saltations, "single sporadic production of one or more divergent individuals"; (3) germinal disintegration (as in *Drosophila*). The hereditary and hereditarily modifiable characters of the organism Tower finds to be practically all included in the group that

behaves according to the Mendelian schema; the problem of evolution is, therefore, mainly how this group is altered, built up, or torn down. "Clear consistent proof is provided of the alteration in the germ of something which conditions a character of the soma, and the evidence available strongly indicates that the changes found are not the product of a struggle between determinants, but changes which appear suddenly, are fixed from the start, and are physico-chemical in character, and not the outcome of a struggle for place and food between lesser organic units" (p. 190). "The fundamental operation in transmutation is the interaction of the constitution of the gametic substance with the conditions under which its activities go on" (p. 191). Evolutionary change is rapid; "the processes of origin produce transmuted factors in the organism within one or at most a few generations" (p. 21). "I have found in my materials that transmutation may be by sudden change, by slow accumulation, by hybrid reaction, and by means of environmental forces, and in all changes the basal operations involved are purely physical types of reaction between the gametic agents and the conditions surrounding the reaction" (Preface).

In most or all of these concrete results Tower's work agrees with other thorough work on the subject, particularly that in *Drosophila*. The most original part of his work is his study of alterations in populations when transferred to new conditions. If from a given population having many biotypes random samples consisting of many individuals are isolated in various regions and under diverse climatic conditions and are there allowed to multiply for generations, the characteristics of the population shift from year to year, though in ways still limited by the characteristics of the biotypes of which the original population was made up. In a given region the population-type alters from season to season, whereas in different regions different population-types are found at the same time. If from several of the diverse population-types samples are again isolated and all are placed under the same conditions, the charac-

teristic differences of type persist. The direct causes of this shifting of type require experimental investigation. It appears not due to transmutation of characters, but rather to increase in the biotypes having certain characteristics and decrease in others, with the formation, through interbreeding, of new combinations of their characters. "Thus far the results obtained show that isolation alone is not productive of germinal changes" (p. 16).

Banta (*Proc. Soc. Exp. Biol. and Med.*, xvi, No. 8) reports that selection with reference to the reaction to light is effective within the single biotype of the crustacean *Simoecephalus*. Hegner (*Proc. Nat. Acad. Sciences*, January, 1919) shows that in the rhizopod *Arcella* some of the hereditary changes that occur within the single biotype are the result of changes in the number of nuclei present or in the amount of chromatin present in the nuclei. Individuals with larger numbers of nuclei are larger in size, and certain other characters are correlated with size. Other hereditary changes cannot be so accounted for.

Adami in the book cited above gives a valuable presentation of the relation of investigations in immunity, pathology, and other medical matters to the problems of heredity and evolution. He argues strongly for direct adaptation of organisms, giving many examples of what appear to him undeniable cases of this in bacteria and in higher organisms and presenting the current hypothesis of the mechanism by which this occurs. He holds it demonstrated that in lower organisms such adaptations are inherited, and that even in higher organisms it is proven that environmental effects are inherited. Of great interest is his use of the law of habit in explaining immunity, tumor growth, and inher-

itance. The work is marred by frequent sweeping ridicule of "academic biologists," which epithet in the text appears to signify professional biologists not medical men; in the preface he specifically excepts most of them from the title, leaving it rather absurdly empty.

Macfarlane in the book already mentioned presents a closely thought out general work on evolution, the product of a lifetime of investigation, study, and meditation. It deals with evolution as a problem of the transformation of energy, and traces particularly the development of the activities of organisms—the chemical processes, the reactions to stimuli and their integration, mental processes, and, finally, social and religious developments. The author has a penchant for formal definitions and for classification into entities. The *anima vegetativa*, *anima sensitiva*, and *anima rationalis* of the schoolmen are replaced by three superimposed forms of energy characteristic of living things and not found in the inorganic: the *biotic*, characteristic of non-nucleated protoplasm; the *cognitic*, appearing with the nucleus and having to do with sensation, reaction, and correlation of response; and the *cog- itic*, coming with the nerve tissue and bringing about the higher mental activities. He inclines to the belief that a still higher form of energy, the *spiritic*, appears later, manifested in the spiritual life. Evolution proceeds by "pentamorphogeny," *i. e.*, through five factors: heredity, environment, pro-environment, selection, and reproduction. It will be found that the acceptance of the formal definitions and entities is not essential to the argument, which is full of meat and worthy of study. Of particular interest is the discussion of the group of phenomena which the author classifies under pro-environment.

VERTEBRATE ZOÖLOGY

H. E. JORDAN

Gross Anatomy.—Allis (*Am. Jour. Anat.*, xxv, 4) discusses the question of maxillary and vomer homologies among fishes, recent and fossil, and mammals. His conclusions are based largely upon a study of *Polypterus*,

Acanthias, *Amia*, *Lepidosteus*, *Polyodon*, and certain Teleostei. He describes five different types of secondary dental arcades in the upper jaw. The arcade found in *Polypterus* is said to correspond with that found

in certain fossil fishes and probably also with that of the mammalia. In this type the maxillary and pre-maxillary element each has two components, the one dental and the other dermal, the latter component being formed by bones developed in relation to the latero-sensory canals. The other four types are represented by *Conger*, the *Holostei*, *Polyodon*, and most *Teleostei* respectively. In the fourth type of arcade a pre-maxillary element is lacking.

Henderson (*Anat. Rec.*, xvi, 5) presents a description of the adult lymphatic system of the spermophile (ground squirrel). Striking peculiarities concern the presence of a jugular lymph sac and renal and post-caval venolymphatic connections in addition to the usual connection of the jugulo-subclavian region.

Slonaker (*Jour. Morph.*, xxxi, 3) gives a detailed account of the anatomy of the eye of the English sparrow.

Chapman (*Am. Jour. Anat.*, xxv, 2) shows that burrowing mammals possess a characteristic, similarly specialized, type of horizontal pelvis firmly coössified to the vertebral column, the ventral margin of the pelvic bones being horizontal and diverging from each other posteriorly, and the symphysis pubis being either absent altogether or else reduced in various degrees.

Histology.—The discrepant conclusions of Reeves (1915) and of Boring and Pearl (1917) regarding the occurrence of interstitial cells in the testis of the domestic fowl may find an explanation in Goodale's claim that the so-called interstitial cells of chickens' gonads are eosinophilic leucocytes (*Anat. Rec.*, xvi, 4).

Arey (*ibid.* xvii, 1) shows that certain membrane bones of man contain typical Haversian systems indistinguishable from those of substitution bones.

McJunkin (*Am. Jour. Anat.*, xxv, 1) presents evidence tending to show that the five per cent. of phagocytic mono-nuclear cells present in human blood consist entirely of endothelial leucocytes.

Jordan (*ibid.*, xxvi, 1) presents a description of the histology of the umbilical cord of the pig. The full-term

cord is extensively vascularized, the connective tissue being only in small part of the typical mucous variety; in major part it consists of a tissue resembling young mesenchyma. In the latter appear abundant stages in the initial steps of vasculogenesis and hemopoiesis. The mesenchymal cell may become transformed into a multinucleated hemoblast, which latter cell may differentiate intracellular erythrocytes and persist in part as the endothelium of an initial bloodvessel. Endothelium originates both by adaptation of mesenchyma about a blood-island and by vacuolization and fusion of vasofactive mesenchymal cells. The bloodvessel lumen has a composite inter- and intracellular origin.

In the fourth number of his "Studies on the Mammary Gland" Meyer (*ibid.*, xxv, 4) describes the histology of the mammary gland in male and female albino rats from birth to 10 weeks of age. The formation of the lumens of the milk ducts is described as apparently a process of the rearrangement of the cells in the originally solid primordia. The lumen of the primary duct is not completely formed until after the second week; the secondary ducts possess fairly well developed lumens at the time of birth. At nine or 10 weeks some of the terminal processes of the ducts show indications of developing alveoli. A slight secretion of "witches' milk" appears in the lumens of the milk ducts soon after birth, but this secretion lacks fat and hence is not a true lactation as in man. Prior to the 10-week stage the stroma lacks infiltrated leucocytes.

Arey (*Jour. Comp. Neur.*, xxx, 4) undertakes to determine the degree of the specific morphologic response of the pigment cells and the rod and cone visual cells of the eyes of certain vertebrates (frog, *Abraxis*, and *Ameiurus*) to graded intensities of light. He presents histologic evidence which shows that the threshold of stimulation of these cells, where they exhibit their characteristic photo-mechanical changes, is high, and which disproves the claim of great sensitivity of these elements to light of extremely low intensity.

Witte (*Am. Jour. Anat.*, xxv, 3) describes the development of the in-

tercalated discs in the pig's heart. The discs appear at the 76-mm. stage, some time after the cross striations become conspicuous and at about the time that the myocardium changes from a cellular to a syncytial condition. The latter circumstance suggests the theory "that the discs serve as strengthening bands in the muscle fiber." The discovery of typical intercalated discs of the simple band form in human leg muscle (Jordan, *Anat. Rec.*, xvi, 3), however, adds strong support to the interpretation of these discs as "essentially modified irreversible contraction bands" (Jordan and Steele).

Jordan (*ibid.*, xvi, 4) has investigated the comparative histology of the leg and wing muscles of the mantis. An accessory disc is conspicuous in the leg muscle. Evidence is presented which proves that the elements which compose this disc are located within, not between, the myofibrils; that it contributes to the formation of the contraction band during contraction; and that both accessory disc and contraction band are independent of the sarcosomes. Sarcosomes are very abundant in the wing muscle. The J and Q sarcosomes are regarded as only different stages in the development of the same element. They have in large measure a lipoid constitution and are interpreted as having a nutritive significance.

Tilney and Warren (*Am. Anat. Mem.*, No. 9) have published Part 1 of "A Contribution to the Study of the Epiphysis Cerebri with an Interpretation of the Morphological, Physiological, and Clinical Evidence" (pp. 1 to 258). This instalment deals with the morphology and evolutionary significance of the pineal body. The terms "epiphysis cerebri" and "corpus pineale" are here used synonymously to designate the homologue of the combined proximal portion and peduncle of the "pineal organ," the latter when complete including in addition an end vesicle and a stalk, as in certain lower vertebrates. They review and evaluate the literature on the pineal body from the time of Descartes, and add original observations on the structure of the epiphysis in man, kittens, kangaroo,

goat, camel, orang, rabbit, and the sea lion. They conclude that the mammalian pineal body cannot be regarded as the vestigial or metamorphosed degenerated or atrophic residuum of the parietal eye of vertebrates, but that it is a glandular structure in some way necessary to metabolism.

Jordan (*Am. Jour. Anat.*, xxv, 4) has extended his studies on the origin and significance of blood platelets by an investigation of the blood and red bone marrow of the frog. The amphibian homologue of the mammalian megakaryocyte, the source of platelets, is not the spindle cell, as claimed by Wright and by Downey, but a large mononucleated cell comparable to the similar mononucleated giant cell of mammalian marrow from which develop the polymorpho- and polynucleated types of giant cells. Pseudopod formation and segmentation is a property common to all types of leucocytes, resulting in the formation of platelet-like bodies, either hyaline or granular. Cytoplasmic fragmentation accompanying senility and disintegration of leucocytes likewise leads to the formation of similar platelet-like elements. Platelet formation from megakaryocytes in mammalian red bone marrow is interpreted as a by-product of the normal activity of these leucocytes in the formation and constriction of pseudopods, and of the disintegration of senile forms of these cells. Platelets occur also in the blood spaces of the yolk sac and of the liver of the pig embryo as early as the 12-mm. stage of development. They arise in similar manner by cytoplasmic constrictions and disintegration from hemoblasts and their giant cell derivatives and occasionally from endothelial cells (*Anat. Rec.*, xv, 7).

Neurology.—Larsell (*Jour. Comp. Neur.*, xxx, 1) reports an extensive study of the nervus terminalis in a number of mammals. The nerve is composed of myelinated fibres, unmyelinated fibres with a neurolemma, and naked fibrils. Typically it includes two chief ganglionic swellings containing both sensory unipolar and motor multipolar neurons. In the dog and the squirrel only one ganglion is present. Larsell concludes that

the nerve comprises both visceral afferent and visceral efferent fibres with sensory and motor endings in the tunica media of the anterior cerebral artery and its branches, and distinct general visceral afferent fibres from the mucosa of the nasal septum and the vomero-nasal organ. The terminalis would seem to be a nerve of the autonomic system related to the vasomotor control of the cerebral blood-vessels. In the turtle the *nervus terminalis* has a cerebral origin by several roots in a manner very similar to that in mammals (*ibid.*, xxx, 5). It takes part likewise in the formation of a plexus on the nasal septum comparable with that found in mammals. The cells of the ganglionic clusters here also present a pronounced resemblance to cells of the autonomic ganglia. Ayers (*ibid.*, 4) concludes, from a study of cephalogenesis in *Amphioxus* and cyclostomes, that the *nervus terminalis* is a sensory nerve related physiologically to the vomero-nasal nerve in mediating a special chemical sense.

Allis (*ibid.*, 1) presents a study of the ophthalmic nerves of gnathostome fishes. An attempt is made also to eliminate the confusion in terms previously employed to designate these nerves.

Rhinehart (*ibid.*, 1) investigated the *nervus facialis* of the albino mouse by means of serial sections of entire heads stained by the pyridine silver technique. This nerve in the mouse is said to correspond very closely with that of other mammals and man.

Marui (*ibid.*, 1) has investigated the finer structure of the synapse of the Mauthner cell of the teleost brain. He concludes that the so-called "Golgi net" of Bethe is of glious nature, not nervous, and is continuous with the sheath of glious tissue which envelops the unmyelinated terminals of nerve fibres, the combined structure forming the so-called "pericellular nervous terminal net" of Held ("neuropil" of Apathy). He claims to be able to demonstrate a direct continuity between the intra- and extracellular neurofibrils, thus contradicting the central concept of the neuron theory, as applied to the adult nervous system, that the

synapse is a condition of contact, not anatomic continuity. His investigation of the effect of fatigue upon the synapse (*ibid.*, 3) revealed no definite histologic alterations in the nervous structure, but the reticular glia element of the synapse appeared in part broken up into ameboid glia cells with metachromatic basophil granules.

Van der Stricht (*ibid.*, 3) publishes a detailed description of the development of the tunnel space and Nuel's spaces in the organ of Corti (in kitten, dog, and other mammals).

Ellis (*ibid.*, 2) has made a study of the numerical differences in Purkinje cells in normal, subnormal, and senescent cerebella. In cases of extreme mental defect he finds an evident deficiency in the number of these cells. Similar reductions in the number of these cells are found in senescent and parietic cases. In subnormal cerebella the numerical reduction is said to be due to failure of development, in senescent and parietic cerebella to disintegration.

Embryology.—The process of healing in experimental wounds in early chick embryos, studied in hanging drop preparations, is described by Poynter (*Anat. Rec.*, xvi, 1). In the embryo proper the wound heals by dedifferentiation of the ectodermal epithelium and the migration of these cells over the cicatrix. In the extra-embryonic blastoderm all three germ layers participate in the healing process, the cells of the several layers dedifferentiating into similar elements and, after fusion across the wound, subsequently redifferentiating into cells of the type of cell of the germ layer from which they migrated.

Bartelmez (*Biol. Bull.*, xxxv, 6) has investigated the relation of the embryo to the principal axis of symmetry in the bird's egg. The embryonic axis is so related to the egg axis that the right side of the embryo is nearer one of the ends of the principal egg axis than the other. The angle between the two axes is subject to great variation, but in 85 per cent. of cases investigated it fell between 45° and 90°.

Hartman (*Jour. Morph.*, xxxii, 2) has continued his studies of the development of the opossum with a description of additional material on

maturation, cleavage, and entoderm formation, and of the bilaminar blastocyst. He gives the reduced number of chromosomes as 12. The egg possesses a large amount of yolk uniformly distributed, it lacks a definite polarity, its cleavage does not include a morula stage, and the entoderm arises very early from "entoderm mother cells" in the wall of the unilaminar blastocyst.

Experiments by George (*Biol. Bull.*, xxxv, 5) on frogs' eggs indicate that the material of the gray crescent gives rise to the neural plate.

Meyer (*Jour. Morph.*, xxxii, 2) discusses the nature, occurrence and identity of the plasma cells of Hofbauer, characteristic of chorionic villi. He concludes that these cells are degenerating, non-phagocytic, mesenchymal derivatives.

Kampmeier (*Anat. Rec.*, xvi, 6) summarizes his recent studies on the origin and development of the lymphatic system in anuran amphibia. The larger lymphatic ducts are said to arise by the coalescence of originally separate mesenchymal spaces, the more superficial capillary plexuses by process of sprouting and centrifugal growth.

Scammon (*ibid.*, xv, 6) presents a study of the development and finer structure of the sucking pad (corpus adiposum buccae) in man. His observations contradict the theory that the body represents the remains of the orbital salivary gland. It develops independently of the parotid duct and the molar glands. It develops from mesenchymal and preadipose tissue into a sharply circumscribed mass of fat lobules grouped about the middle of the venous plexus between the orbital veins and the superficial facial veins.

Hunt (*ibid.*, xvi, 6) describes an interesting case of probable superfecundation in the cat.

In a paper describing certain types of double trout monsters Morrill (*ibid.*, 4) discusses the general question of the cause of symmetry reversal and mirror imaging. He concludes that the unknown primary cause of visceral asymmetry in vertebrates works its specific effect more probably at the completion of cleavage than during the period of cleavage.

According to Atterbury (*ibid.*, 4) a well defined pharyngeal tonsil develops in the calf in the absence of a pharyngeal bursa or other epithelial outpocketings. His observations suggest the conclusion that the dorsal pharyngeal evagination of human embryos, and the series of such pockets in pig embryos, are only to be regarded as mechanical expressions of the conditions of growth in the pharyngeal region and not as essential primordia for the development of the pharyngeal tonsil.

Ringoen (*Jour. Morph.*, xxxii, 2) describes the development of the gastric glands in *Squalus acanthias*.

Johnson (*ibid.*, xxxi, 1) presents evidence that in birds a fifth visceral pouch is developed in addition to the ultimobranchial body. Badertscher (*Am. Jour. Anat.*, xxv, 1) continued his earlier study (1918) of the ultimobranchial bodies in the pig embryo and foetus through postnatal stages. These bodies contribute a variable amount of substance to the median thyroid primordium in the formation of the definitive gland.

Danforth (*ibid.*, 2) cites data which seem to indicate that in the domestic fowl brachydactyly, feathering of the tarsi, and probably syndactyly are all dependent on one and the same (unknown) genetic factor. He suggests a causal connection between these anomalies and the functional condition of the endocrine glands.

Watson (*ibid.*, xxiv, 4) publishes a description of the development of the seminal vesicles in man; Str eter (*ibid.*, xxv, 1), of the filum terminale; Norris (*ibid.*, xxiv, 4), of the median thyroid; and Senior (*ibid.*, xxv, 1) of the arteries of the lower extremity. Jackson (*ibid.*, 3) describes the post-natal development of the adrenal in the rat; Murray (*ibid.*, xxvi, 1), the development of the cardiac loop in the rabbit; and Johnson (*ibid.*, xxv, 3), the development and manner of multiplication (by division) of the lobule of the pig's liver. Hanson (*Anat. Rec.*, xvii, 1) describes the development of the sternum in the pig. In a second paper he discusses the questions of the ontogeny and the phylogeny of the sternum. He concludes that Ruge's theory of the costal

origin of the mammalian sternum is no longer tenable. He shows that in vertebrates the sternum is more closely related to the coracoid elements of the shoulder girdle than to the ribs, becoming only secondarily, never genetically, associated with the ribs.

Experimental Zoology.—Allen (*ibid.*, xvi, 2) reports total degeneration of all male germ cells, similar to that following direct X-ray treatment of the testes, in rats reared on a diet deficient in water-soluble vitamins. Such treatment had no untoward effect upon growth and general development. In the male the Sertoli cells persisted unimpaired and the interstitial tissue was hypertrophied. A similar degeneration of male germ cells is said to follow prolonged alcoholization, but without hypertrophy of interstitial tissue.

Drips (*Am. Jour. Anat.*, xxv, 2) presents an experimental and histologic study of the corpus luteum of the spermophile. She confirms Sobotta's original conclusion (1896) that the luteal cells (in the ovary of the mouse) represent transformed granulosa cells of the ovarian follicle. The presence of corpora lutea inhibits the development of the follicles. They apparently have no influence upon the development of the mammary glands. The corpus luteum is said to be a gland with two internal secretions, both having specific effects on the uterus, one effecting changes incident to pregnancy and the other controlling normal involution of the organ. According to Corner (*ibid.*, xxvi, 1) the corpus luteum of the sow is a composite structure, the luteal elements of which include the cells of the membrana granulosa and a variable number of metamorphosed connective tissue cells of the theca interna.

Hoskins and Hoskins (*Jour. Exp. Zool.*, xxix, 1) report results of thyroidectomy in amphibia. They removed the thyroid primordium in embryos before it had begun to differentiate. Such larvae grew much more rapidly than the controls, and may ultimately become more than three times as large as the controls; they never metamorphose, but retain the power of regeneration of lost parts

to a limited extent for more than a year. They conclude that the thyroid is necessary for metamorphosis of frog larvae kept on normal diet.

Swingle (*ibid.*, xxvii, 3) reports two experimental studies on the relation of iodine to the thyroid. Normal tadpoles respond to iodine feeding by accelerated metamorphosis; thyroidectomized tadpoles when fed inorganic iodine metamorphose in an abnormally short time. He suggests that iodine functions within the organism as a hormone, and that the chief function of the thyroid gland may be to extract iodine from the blood and provide for its storage. He shows further that the thyroid glands of iodine-fed frog larvae are larger than the glands of control animals held at the same body length as the animals of the iodine-fed cultures by underfeeding. Moreover, the follicles of the glands of such iodine-fed larvae contain much more colloid than the follicles of the controls.

Allen (*Biol. Bull.*, xxxvi, 6) shows that tadpoles of *Rana* and *Bufo* deprived of the pituitary gland fail to metamorphose in spite of the fact that the thyroid gland remains intact and even though the body of the tadpole attains gigantic size. In the absence of the pituitary the thyroid is apparently powerless to inaugurate metamorphosis. But administration of iodine to such larvae lacking the pituitary, effects normal metamorphosis. These results indicate that the pituitary gland plays an active rôle in metamorphosis and accord with the hypothesis that views the thyroid gland simply as a storage organ for iodine. In a later paper Allen (*Jour. Morph.*, xxxiii, 3), states that the accumulation of colloid in the thyroid begins at the time the hind limb buds appear. The gland grows with the accumulation of colloid until the onset of metamorphosis, when it suffers a diminution in size. This apparently paradoxical fact is interpreted as the result of the absorption into the blood of an unusually large amount of stored colloid at the time when it would prove most effective in stimulating metamorphosis.

Immunological studies with reference to the thymus by Takenouchi

(*Jour. Exp. Zool.*, xxix, 2) failed to reveal any definite endocrine (internal-secretion) function of this organ in rabbits.

Mann (*Endocrinology*, iii, 3) performed splenectomy on dog, goat, and

rabbit with a view to determining the functional relationship between spleen and thymus. No evidence was obtained to indicate that removal of the spleen produces a constant change in the thymus.

INVERTEBRATE ZOOLOGY

ROBERT W. HEGNER

General.—The literature on invertebrate morphology that has appeared in this country during the year deals largely with the protozoa and parasitic worms. Other groups that are included in the following report are the coelenterata, free-living flat worms, rotifers, annelids, crustacea, mollusks, and echinoderms. Contributions to systematic entomology are considered in a separate article following this review.

Protozoa.—Among the protozoa the ciliates and flagellates have been special favorites with investigators. *Paramecium* has been used for studies on diet (Flather, *Biol. Bull.*, xxxvi, 54). Specimens were reared in cultures of polished and unpolished rice to learn what effect the absence of the vitamins contained in rice would have on their metabolic activity. Those in the polished-rice cultures lacking in the vitamins did not maintain their vitality, whereas those in the unpolished rice cultures did. The vitamins are probably the important factor absent from the polished-rice culture. *Paramecium* was also employed for the study of the effect of food hormones and glandular products on the rate of growth (Chambers, *ibid.*, 82). Potato extract seems to have little effect on division rate, but yeast increases the rate of division. Contrasting results were obtained with pituitary solution, and suprarenal extract caused an increase in division rate. Definite results can only be secured when the bacterial content of the culture is carefully controlled. The nuclear phenomena in the ciliate *Uroleptus mobilis* during division and conjugation were investigated by Calkins (*Jour. Exp. Zool.*, xxvii, 293). It is impossible to state briefly the many interesting results of this work, but it includes in addition to the descriptions of nuclear phenomena a comparison of

these processes with what we know in other ciliates (see also *Organic Evolution*, *supra*). In another place (*Proc. Soc. Exp. Biol. and Med.*, xvi, 57) Calkins discusses the effect of conjugation on this ciliate. He decides that the cause of depression and death is endogenous, not exogenous, and that one fundamental effect of conjugation is the renewal of vitality, or rejuvenescence, of the protoplasm. Juday (*Biol. Bull.*, xxxvi, 92) has described a new anaërobic ciliate which was found in Lake Mendota at depths of from 14 to 22.5 m. It resembles members of the genus *Enchelys*. When the water became well aerated, it disappeared promptly. Conditions in its habitat are: temperature, 12.6–17.4° C.; oxygen, 0.00 to 3.08 cc. per litre, carbon dioxide, 2.40 to 11.00 cc. per litre. Two ciliates, one probably a new species, are reported from Great Salt Lake by Pack (*ibid.*, 273). These ciliates respond to dilution of the medium by increased size, increased activity, shortening of the feeling cirri, more active physiological and reproductive processes, and more flexible and contractile bodies. Mast (*Jour. Exp. Zool.*, xxvii, 367) has continued his studies on the effects of light on lower organisms with a paper on reversion in the sense of orientation to light in the colonial protozoa *Volvox globator* and *Pandorina morum*. Both these forms orient precisely and may be either negative or positive. Reversion is not primarily due to photosynthesis. It is produced most easily by green and blue rays. Temperature and chemicals and age all have effects upon reversion, and the results of carefully performed experiments with these factors are given. Four papers by Kofoid and Swezy have appeared on the protozoan parasites of the termites (*Univ. of Cal. Publ.*, xx, 1).

The first contains a description of a polymastigote flagellate *Streblomastix strix*, which is usually found attached to the intestinal wall. It is linear in shape, has a neuromotor apparatus, divides by binary and multiple fission and is adapted in shape and arrangement of parts to its habitat. A new family, *Streblomastigidae*, is proposed for it. Another new polymastigote flagellate, *Trichomitus termitidis*, is described in the second paper. This form is apparently non-pathogenic to its host, never being found attached to the walls but feeding on the intestinal contents. Its neuromotor apparatus is very highly developed. A third paper deals with another new protozoan, *Trichonympha campanula*. The morphology and division of this species are thoroughly described and its relationship to the flagellates firmly established. The fourth paper concerns *Leidyopsis sphaerica*, another new flagellate, whose morphology, division, and relationships are fully treated. An important paper on the parasitic flagellate of the rat *Giardia microti* has appeared from the pen of Boeck (*Univ. of Cal. Publ.*, xix, 85). The cycle of encystment, the development within the cyst, and the parabasal bodies are fully discussed. Experiments with bismuth subnitrate and bismuth salicylate indicate that these chemicals have no therapeutic value in the treatment of giardiasis. Of considerable interest is the discovery by Swezy (*Trans. Amer. Mic. Soc.*, xxxviii, 20) of a species of the flagellate *Trypanoplasma* living as an ectoparasite on gold fish. A description of this protozoön is given in his paper, accompanied by a plate of figures.

Celenterata.—Tannreuther (*Biol. Bull.*, xxxvi, 418) has undertaken to determine whether the reproductive organs of *Hydra* originate directly on the forming buds or are formed on the parent organism and later migrate to the buds during their development. Reproductive organs were found to migrate from parent to buds, but this probably has no very special significance, since they migrate in conjunction with the surrounding cells. The structure and organization of the colonial celenterate, the seapen

Renilla amethystina, has been studied by Parker (*Jour. Exp. Zool.*, xxvii, 499). The zoöid is recognized as the unit of structure in the colony, and such a part as a tentacle is considered an organ, but the peduncle and nerve net serve the whole colony and may therefore be called superorgans. These superorgans give a unity to a colony that is often unexpressed in the individuals of which it is composed. In a long paper Davis (*ibid.*, xxviii, 161) describes his investigations on asexual multiplication and regeneration in the sea anemone *Sagartia luciae*. Asexual reproduction occurs by a process of aboral fission with subsequent regeneration. The development of the pieces after fission is fully described. Sexually mature individuals of both sexes have been found, but reproduction probably depends chiefly on the asexual method.

Platyhelminthes.—Behre's work on *Planaria* (*Biol. Bull.*, xxxv, 277) was for the purpose of determining the effect of temperature changes upon the metabolism of the animals and to discover, if possible, a physiological basis for the phenomenon of acclimation to temperature changes. It was found that acclimation to a rise in temperature is accompanied by a gradual decrease in rate of metabolism or oxidation, and acclimation to a decrease in temperature is accompanied by a gradual increase in rate of metabolism or oxidation. The temperature-regulating mechanism in the animals studied resembles as regards its action on metabolism that of warm-blooded animals.

Investigators of parasitic flat worms have been extremely active and space will allow only brief mention of their work. Young (*ibid.*, xxxvi, 309) describes the degeneration of yolk glands and cells in several cestodes, and also the association of flame cells with germ cells within the testis. Faust (*ibid.*, 315) describes the excretory system of two new species of cercariae, *Cercaria convoluta* and *C. spatula*, and establishes the relationships of various larval flukes to one another and of larvae to adults by means of studies of their excretory systems. Osborn (*Jour.*

Parasitology, v, 123) compares the trematode infesting the liver of Japanese crustacea as described by Yoshida with a form he has found in the liver of crayfishes taken at Lake Chautauqua, N. Y. A new cystocercous cercaria, *C. fusca*, is described by Pratt (*ibid.*, 128) from the liver of a snail, *Goniobasis livescens*, taken in the Oneida River in northern New York.

Nemathelminthes.—The common intestinal parasitic nematodes of the genus *Ascaris* have recently become of particular interest because of new discoveries regarding their life histories. Ransom and Foster (*ibid.*, 93) review the new knowledge on this subject and add the results of some interesting experiments of their own (see also xvi, *Veterinary Medicine*). Yoshida (*ibid.*, 105) has also reported on this problem. He discusses the hatching place of the eggs and the migration of the larvae in the body of the host and carried on experiments on mammals and on man. The blood-destroying substance in *Ascaris lumbricoides* was studied experimentally by Schwartz (*Jour. Research*, xvi, 253). A peculiar nematode, *Hedruris siredonis*, is described by Chandler (*Jour. Parasitology*, v, 116) from the stomach of the western newt. A long and carefully worked out monograph has been prepared by Magath (*Trans. Am. Mic. Soc.*, xxxviii, 49) on a new species of nematode, *Camallanus Americanus*, which occurs in the intestine of certain turtles. Besides a thorough description of the anatomy of this worm, a section of the monograph is devoted to the subject of the classification of the parasitic nematodes. Van Cleave has continued his studies of the Acanthocephala (*Bull. Nat. Hist. Survey of Illinois*, xiii, 225) with an account of the habits, extent of infestations, influence of age of host in infestation, adaptability to different host species, and descriptions of species found in the vertebrates of the Illinois River.

Rotifera.—The control of the production of males and male-producing females in rotifers has been further investigated by Whitney (*Jour. Exp. Zool.*, xxviii, 469). He believes that his experiments show that oxygen is not influential in causing an increase

of male-producing females, a conclusion directly opposite that arrived at by A. F. Shull.

Annelida.—The reversibility of the heliotropism of arenicola larvæ by temperature and chemicals has been studied by Kunda (*Biol. Bull.*, xxxvi, 149). At room temperature in normal sea water these larvae are positively heliotropic, but at temperatures 10° C. higher or lower many of them become negative. A number of chemicals were added to the medium, reversibility resulting in a number of cases.

Crustacea.—The State Geological and Natural History Survey of Connecticut continues to publish its valuable bulletins in which are brought together much otherwise scattered information on plants and animals. Bulletin No. 26 by Kunkel is devoted to the Arthrostraca of Connecticut, including the amphipods and isopods. The general biology of the members of these groups is presented, followed by keys for identification and descriptions of the species. This monograph of 261 pages contains 84 figures that are very helpful and a short bibliography. The land isopods have been studied by Abbott (*Jour. Exp. Zool.*, xxvii, 193) with respect to their reactions to light. A statement of their normal behavior to light stimuli is followed by experiments with directive light involving a study of normal reactions, modifiability of the light reactions, and an ecological analysis. Responses to light stimuli are by photokinesis, phototaxis, and vision, the latter being only slightly developed. *Oniscus* and *Porcellio* respond in the same way to all intensities. Immersion in water inhibited responses. *Oniscus* seems to be oriented directly by light. Esterly's contribution on the reactions of various plankton animals with reference to their diurnal migrations (*Univ. of Cal. Publ.*, xix, 1) deals largely with copepods. Five species of these were subjected to various stimuli in order to determine their phototropic and geotropic reactions. These are then discussed in relation to the diurnal migrations of the organisms. No adequate explanation of these migrations could be obtained based on responses to external stimuli.

Mollusca.—Of considerable interest are Crozier's studies of assortive mating in a nudibranch, *Chromodoris zebra* (*Jour. Exp. Zool.*, xxvii, 247). Both in nature and under conditions of mass culture in the laboratory it was found that a high degree of correlation exists between the length of the two components of a conjugating pair. This is shown, by a study of mating behavior, to be the result of assortive mating. During mating these hermaphroditic animals effect reciprocal insemination, and this is made more certain if the members of a pair are nearly of a size. Crozier has also investigated locomotion in several gasteropods and has discovered a method new for these animals (*ibid.*, 359). The snail *Xenophora* moves in a looping manner not dissimilar from that of the measuring worm. Descriptions are also given of the arhythmic pedal progression and the retrograde pedal waves of several species of chitons. In a second contribution to the subject of the effect of heat on the egg of *Cumingia*, Hoskins (*Biol. Bull.*, xxxv, 260) reports the suppression of the formation of polar bodies in eggs subjected to heat immediately after fertilization. The result is a cleavage nucleus containing a triploid amount of chromatin. The chromosomes are compared in size and number with those in eggs treated by heat after polar body formation and in parthenogenetic eggs. The conclusion reached is that the conditions described are not in opposition to the theory of the individuality of the chromosomes, if that theory is given a broad interpretation. A new species of Pteropod, *Desmopterus pacificus*, has been discovered by Essenberg (*Univ. of Cal. Publ.*, xix, 85) in American waters, the first pteropod to be reported from either the Atlantic or Pacific waters of America. A short description of the structure and behavior of this species is given. Drew (*Jour. Morph.*, xxxii, 379) has published the second paper of a series on the sexual activities of the squid, *Loligo pealii*. In this contribution he describes the structure, ejaculation, and formation of the spermatophore.

Echinodermata.—In a series of three papers (*Biol. Bull.*, xxxvi, 1)

Just has published the results of experiments on the fertilization reactions of the "sand-dollar" *Echinarchnius parma*. The cortical response of the egg to insemination, the rôle of fertilizin in straight and cross fertilization, and the nature of the activation of the egg by butyric acid are the topics considered.

Bibliography.—Unfortunately there are no bibliographic or abstract journals devoted to invertebrate morphology. Certain types of literature will be found listed in the *Index Medicus* "Abstracts of Bacteriology," and in the journals above mentioned. The Wistar Institute publishes bibliographic and abstract cards of papers that appear in the *Journal of Morphology*, *Journal of Experimental Zoology*, *Journal of Anatomy*, *Anatomical Record*, and *Biological Bulletin*.

ENTOMOLOGY

E. PORTER FELT

Wings.—Most insects are winged, and the bewildering modifications and the homologies of these important organs are exhaustively discussed and profusely illustrated in the *Wings of Insects* (Ithaca, N. Y., Comstock Publishing Co.,) by J. H. Comstock, a veteran investigator and teacher, who with his associates worked for years on these organs. This volume, summarizing these studies in a most comprehensive manner, constitutes a real contribution to science and at the same time gives the world a consistent nomenclature for wing structures.

Taxonomy.—G. C. Crampton, a well known investigator along morphologic and taxonomic lines, has in his "Notes on the Ancestry of the Diptera, Hymenoptera and Other Insects Related to the Neuroptera" (*Trans. Ent. Soc. Lond.*, 1919) presented an excellent summary of his views on classification. He regards the Neuroptera as descendants of ancestors more directly related to the members of the Plecopteroid superorder and ultimate descendants from forbears related to the Ephemerid group. Insects related to the Neuroptera fall into two superorders, Panneuroptera and Panhomoptera.

Odonata.—Dragon flies are highly specialized along certain lines, and

Whedon in an exhaustive paper on the "Comparative Morphology and Possible Adaptations of the Abdomen in the Odonata" (*Trans. Am. Ent. Soc.*, xliv, No. 4) has given us a careful study of both adults and larvae in an effort to explain the origin of the elongated abdomen as a group character and the further modification or adaptation of the type form to meet environmental conditions. He concludes that the elongated abdomen may be related to flight by controlling the position of the center of gravity, in functioning as a rudder and in modifying the contour. He finds that the three important groups of Odonata have in both the larva and the imago followed distinct and different lines of specialization, the larvae of the higher groups being more intricately adapted to aquatic existence and the adults much better fitted for aerial existence.

Insect Galls.—The "Key to American Insect Galls" (E. Porter Felt, *N. Y. State Mus. Bull.*, 200) is a comprehensive tabulation of these interesting deformities, some 1,400 in number, and since the work is profusely illustrated and the galls grouped according to plants upon which they occur, it is comparatively easy to identify most of those found in this country.

Wasps.—The *Mason Wasps* by Fabre, translated by de Matteos (Dodd, Mead), makes another of the delightful volumes by this popular and noted French naturalist available to American readers.

Pyrausta.—The "Aquatic Adaptations of *Pyrausta penitalis*" by Welch (*Ann. Ent. Soc. Am.*, xii, No. 3) discusses the modifications of a terrestrial type to aquatic conditions. The larva feeds upon *Nelumbia lutea*, the newly hatched caterpillars feeding under a silken web which affords protection against dislodgement by wave action, while the older larvae have a well developed, efficient type of surface swimming and can withstand submergence for about an hour and a half. Although pupation occurs in the petiole of the plant below water level and prolonged submergence is fatal, protection is provided not only by the walls of the plant and the formation of a firm silken cocoon, but

also by the construction at the top of the tunnel of a special cap which excludes water and later permits the escape of the adult.

Catocala.—The genus *Catocala*, on account of the large size and attractive coloring of the species, has long been a favorite with collectors of Lepidoptera. Barnes and McDunnough have rendered a material service to science in making it possible to publish *Illustrations of the North American Species of the Genus Catocala* by William Beutenmüller, with additional Plates and Text (Mem. Am. Mus. Nat. Hist., N. S., iii, Pt. 1), since by so doing they have given to the public a most admirable series of figures of these beautiful moths and of some of their larvae and work.

Crane Flies.—The "Crane Flies of New York: Part I, Distribution and Taxonomy of the Adult Flies" (Cornell Univ. Agr. Exp. Station, Mem. 25) is one of the most interesting and comprehensive monographs on Diptera that has appeared during recent years. It is a real contribution to science and has placed our knowledge of the Tipulidae upon a most satisfactory basis. It is understood that the author has an equally comprehensive paper upon the "Biology and Phylogeny of Crane Flies" to be published in the near future.

Gall Midges.—In his "Studies of Gall Midges, VI," (*N. Y. State Mus. Bull.* 202, App.) Felt has continued his monographic account of the Itonididae, better known as the Cecidomyiidae, this paper being limited to approximately half of the tribe Itonididinae, the remainder presumably to appear in the next report. The paper contains a key to all the genera of this large and very complex tribe, together with keys for the separation of the American species of the genera discussed. The same author in his "New Philippine Gall Midges with a Key to the Itonididae" (*Phil. Jour. Science*, xiii, No. 6) has given keys for the separation of the subfamilies, tribes and genera of the world.

Bark Beetles.—The bark beetles, Scolytidae or Ipidae, are very difficult to classify, and the appearance of "Canadian Bark Beetles," Pt. II, by Swaine (Can. Dept. Agr., Ent.

Bur., Bull. 14) marks an important step, since it is the only recent, comprehensive account of the group. A large series of most excellent illustrations of the insects, their structures and work, add very greatly to the value of this admirable contribution.

Aphids.—The Aphididae or plant lice are extremely interesting. Swain (*Univ. of Cal. Publ. Tech. Bull.* 3, No. 1) in his "Synopsis of the Aphididae of California" has given us an excellent synopsis of this difficult group, keys for the separation of genera and species, a table of host plants and a detailed index being part of this study of nearly 200 species. He has also included a translation of Van der Goot's "Key to the Genera and Tribes of Aphididae." A study of the "Plant Lice injuring the Foliage and Fruit of the Apple" Doctor Matheson (Cornell Univ. Agr. Exp. Station Mem. 24), although dealing with economic insects, is

largely systematic, since special attention is given to the characters separating all stages of the three aphids, namely, *Aphis pomi*, *A. sorbi*, *A. avenae*, a problem by no means easy when complicated life histories are involved. A series of colored plates illustrate most admirably the differences between the various stages of the different species. The author has also given careful descriptions of all stages, together with extensive data upon the biology of the three species, and has worked out the complicated synonymy.

De Selys's Catalogue.—It is a pleasure to note that activity on the monumental *Catalogue Systematique et Descriptif des Collections Zoologiques du baron Edm. de Selys Longchamps* (Brussels) has been resumed by the distribution of the fasciculus on the Libellulinae by Dr. Ris. Work upon this magnificent undertaking was suspended during the war.

VERTEBRATE PALÆONTOLOGY

W. K. GREGORY

Fishes.—A large and well illustrated "Catalogue of the Fossil Fishes in the Museum of the Buffalo Institute of Natural Sciences" is published in the *Bulletin* of the Institute, 1918, by L. Hussakof and W. L. Bryant. Most of the specimens are from the Devonian formations within 50 miles of Buffalo. The authors describe the swarming faunas of arthrodiros, ptyctodonts, and early sharks, and give a new restoration of the skull and dorsal armor of *Dinichthys*. Another important faunal study, illustrated with numerous plates, is *Fossil Fishes of Southern California* (Leland Stanford Junior Univ., 1919), which includes one paper by David Starr Jordan on the fossil fishes of the Soledad deposits (Miocene?) and two by Drs. Jordan and Gilbert on the fossil fishes of the Miocene (Monterey) and Pliocene formations.

A new and authoritative restoration of the skull of *Osteolepis*, a Devonian fish of great interest on account of its possible relationships with the piscine ancestors of the land-living vertebrates, is given by Edwin S. Goodrich in the Linnæan Society's

Journal (Zoölogy) (1919). In this connection another valuable item is B. Petronievics' restudy of the pectoral fin of *Eusthenopteron* (*Ann. and Mag. of Nat. Hist.*, ix, 1918), in which he goes a step further than earlier authors in the attempt to homologize certain parts of the pectoral fin of this fish with the digits and carpal elements of four-footed vertebrates.

Amphibia.—A fossil salamander (*Ototriton*) from the Bridger Eocene is described by F. B. Loomis (*Am. Jour. Sci.*, March, 1919). This discovery is of interest on account of the extreme rarity of fossil amphibia in the early Tertiary deposits, and for its bearing on the past geographic distribution of the salamanders, which thus appear to be indigenous in the northern hemisphere. A most important memoir on the structure, evolution, and origin of the amphibia, by D. M. S. Watson, is being published in the *Philosophical Transactions* of the Royal Society of London. Part I deals with the evolution and classification of the varied labyrinthodonts of the orders Rhachitomi and Stereospodi, which are among the oldest known four-footed animals.

Reptiles.—The long series of geographical formations of the Karroo system of South Africa extends from the Upper Carboniferous, through the Permian and Triassic, into the Jurassic, an enormous period of time, marked by many successive zones of reptile life. An excellent review of this faunal succession is given by S. H. Haughton (*Trans. Geol. Soc. So. Africa*, xxii, 1919). He traces the rise and differentiation of the numerous groups of mammal-like reptiles, some of which were evolving toward the mammals, and notices also the other reptiles, one of which (*Euparkeria*) may be related to the common ancestors of the birds, dinosaurs, and pterodactyls. In another paper (*Ann. So. Afr. Mus.*, xii, 1918) Haughton continues his investigations of the skull and braincase of the mammal-like reptiles (*Therapsida*) belonging to several suborders. This line of work is rapidly clearing up the evolution and relationships of these most important groups.

The most primitive known reptile, *Seymouria*, from the Permo-Carboniferous of Texas, almost bridges the gap between amphibia and reptilia. D. M. Watson gives a final description of this animal in the *Proceedings of the Zoölogical Society of London* (1919), accompanied by many valuable figures and reconstructions of the skull and skeleton. With regard to the more specialized Permo-Carboniferous reptiles, E. C. Case describes a mounted skeleton of *Edaphosaurus cruciger* in the geological collection of the University of Michigan (Occasional Papers Mus. Zoöl. Univ. of Michigan, No. 62). Referring to the enormous development of the neural spines on the neck and back of the reptile, the author is of the opinion that they are "a case of physiological overgrowth starting from smaller spines in some ancestral form in which they were of advantage." The faunal and environmental relations of the American Permo-Carboniferous reptiles and amphibians are discussed by the same author in the *Journal of Geology* (Sept.-Oct., 1918), and still more fully in a Carnegie Institution memoir on the environment of vertebrate life in the late Palæozoic in North America, which deals also with

the geography of those periods. A beautiful mounted skeleton of *Dime-troden gigas* in the U. S. National Museum is described by C. W. Gilmore (*Proc. U. S. Nat. Mus.*, 1919).

The place of the Chelonia in the classification of the reptiles is dealt with by the eminent herpetologist G. A. Boulenger in *Comptes rendus* (t. 167, p. 514). In contrast to Williston and Watson, as well as to earlier authors, Boulenger holds that the continuous skull roof of certain turtles is a secondary, not a primary, character, and that instead of the order having been derived from the Eunotosauria and eventually from the Cotylosauria, it is more nearly related to the Rhynchocephalia. The paper, although very brief, cites considerable evidence in favor of this view. The opposite view, that the roofed temporal region is primitive, is favored by the conditions lately recorded in the Triassic chelonian *Stegochelys* (*Triassocheilus*). Copies of Jaekel's memoir on this highly important type (published in 1916 in the Berlin *Paläontologische Zeitschrift*) have recently reached this country and reveal clearly for the first time the interrral skeleton of these oldest known chelonians.

A newly mounted skeleton of the armored dinosaur *Stegosaurus* in the U. S. National Museum is described by C. W. Gilmore (*Proc. U. S. Nat. Mus.*, liv., 383), who also publishes a new restoration of *Triceratops* with notes on the osteology of this genus (*ibid.*, lv, 97). A new family (Psalisauridæ) of dinosaurs provisionally referred to the Stegosauria, possessing a relatively small but very thick skull roof (*Stegoceras*), is described in a posthumous paper by L. M. Lambe (*Trans. Roy. Soc. Canada*, Ser. III, xii, 1918). His death is a great loss to Canadian palæontology.

The dinosaurs were divided by Seeley into the Saurischia, or those with a reptilian type of pelvis, and the Ornithischia, or those with a birdlike type of pelvis. W. K. Gregory (*Copeia*, May 7, 1919) attempts to interpret these divergent types in terms of adaptation, with reference to the probable arrangement of the muscles and different modes of moving the hind limbs.

Birds.—A new and interesting restoration of the famous *Archæopteryx* by E. W. Berry (*Scientific Monthly*, Oct., 1918) represents this most primitive of birds as a fish catcher, and at the same time gives a correct restoration of the Jurassic lagoon of Solenhofen.

Mammals.—The fossil mammals of the Lower Eocene Wasatch and Wind River basins (Wyoming) are represented in the American Museum of Natural History by great collections which are being described by W. D. Matthew and Walter Granger. Part V of this series (*Bull. Am. Mus. Nat. Hist.*, xxxviii, 565), by Dr. Matthew, deals with the insectivores (continued), rodents, and edentates. In the section on the edentates the author describes the skull and skeleton of a new genus *Palæanodon*, representing an intermediate suborder, Palæanodonta, between Taniodonta, or Ganodonta, and the Xenarthra, or typical American edentates of later ages. Many excellent comparative figures are also given in support of the view that the modern Pholidota or *Manis* group are also an offshoot of the primitive Palæanodonts. The paper closes with a very clear diagram illustrating the geological succession and phylogeny of the edentates, as understood by the author. The Tubulidentata (Aardvarks), he states, show no evidence of derivation from this group, and may possibly be an offshoot from the Creodont-Condylarth group of primitive placentals.

In 1904 Dr. Matthew published an article on the "Arboreal Ancestry of the Mammalia" (*Am. Nat.*, xxxviii, 813) in which he accepted the views of Huxley, Dollo, and Bensley regarding the arboreal ancestry of the marsupials and concluded that the placentals likewise are of arboreal origin. This conclusion is contested by J. W. Gidley in a brief article on the significance of divergence of the first digit in the primitive mammalian foot (*Jour. Wash. Acad. Science*, ix, 273). Perhaps his main contention is that the divergence of the first digit of the hand and foot in primitive mammals is not an arboreal adaptation, but has been inherited from the spreading foot of primitive reptiles.

The Tertiary Mammalian faunas of the Mohave Desert are described by J. C. Merriam (*Univ. of Cal. Publ., in Geol.*, xi, 438). The Mohave area is in the southern part of the Great Basin province which lies between the Rocky Mountains and the Coast Range, of the Pacific Coast province. Two faunas are described from this area, first, the Barstow, from near the center of the Mohave area, and second, the Ricardo, in and west of the El Paso Range. In brief, both were open country faunas with a large representation of grazing animals and of the carnivores that fed upon them. The principal problem of the work is the determination of the approximate position of these two faunas in the geological scale. The fauna of the Barstow has few, if any, species in common with that of the Ricardo, and is of a distinctly older type. Its nearest relationships are with the faunal assemblage of the Cedar Mountain region of southwestern Nevada, from which it possibly differs somewhat in stage. The author concludes that the Barstow fauna is of Upper Miocene age, and that the Ricardo stage is not far from that of the Pinole Tuff-Orinda fauna of the San Francisco Bay region, but may be somewhat earlier; it corresponds to perhaps a part of the Snake Creek fauna of Nebraska and to the Lower Pliocene *Hipparion* fauna of China, the Siwaliks, and Pikermi.

A mounted skeleton of *Moropus cooki*, the "clawed" perissodactyl ungulate of the Lower Miocene of Nebraska, is figured by H. F. Osborn (*Proc. Nat. Acad. Sciences*, July, 1919). The same author also figures a mounted skeleton of a four-tusked mastodon, *Megabelodon*, from the Middle Pliocene of Texas. He concludes that:

In these animals we find proof of nearly direct linear descent from the *Palæomastodon* of the Fayûm [Egypt], but that by reason of the elongate rostrum of the mandible *Palæomastodon* is far too specialized in the longirostral direction to be ancestral to the Proboscidea in general and must be removed from its generalized position and be regarded as the ancestor of the long-jawed mastodons only.

From the Huerfano Basin of Colorado (Lower and Middle Eocene) Pro-

fessor Osborn describes several new titanotheres, including the pygmy race, *Eotatanops minimus*, a new and progressive species of *Lambdaotherium* and a forerunner of long-nosed titanotheres of later epochs, named *Eometarhinus* (*Bull. Am. Mus. Nat. Hist.*, 1919).

Origin of the West Indies and their Vertebrate Fauna.—Since the New York Academy of Sciences began its zoölogical and geological survey some years ago, the fauna and geologic history of the Antilles have been studied in the field and in the laboratory by many investigators. In the *Bulletin of the Geological Society of America*, 1918, there is a series of brief memoirs dealing more or less with this subject by T. W. Vaughan, F. H. Knowlton, T. W. Stanton, E. W. Berry, W. K. Trelease, and W. D. Matthew. The last-named author also deals elsewhere (*Proc. Am. Philos. Soc.*, lviii, 1919) more fully with the recent discoveries of fossil vertebrates in the West Indies and their bearing on the origin of the Antillean fauna. On the geologic side the problem of correlating the Tertiary formations exposed in the West Indies with those of the mainland is being rapidly solved, especially with regard to Porto Rico (C. J. Maury, *Am. Jour. Science*, xlviii, 209).

As to the sources and derivation of the faunas and floras of the West Indies, most students of the subject postulate certain "land bridges" or points of contact during Cenozoic time between the Antillean land mass and Central or South America. Vaughan (*Bull. Geol. Soc. Am.*, 1918, 29) states that "at present there is no known geologic evidence against a late Miocene or early Pliocene connection from Anguilla to South America, or from western Cuba and Jamaica to Central America," but most other geologists, palæobotanists, botanists, and zoölogists are more positive in their belief of an essentially continuous, though not necessarily direct, land connection between the Antillean mass and the continents. Dr. Matthew alone defends the provisional conclusions (1) that the Greater Antilles have not at any time during the Tertiary been united with North America, (2) that they have

not at any time during the Tertiary been united with South America, (3) that the mammalian fauna appears to be reducible to perhaps three primary rodent stocks, one or more primary ground-sloth stocks, and two Insectivora. These he conceives to have arrived at various times during the Tertiary, the rodents and ground-sloths from South or Central America, the insectivores from North America, by accidents of transportation, of which the most probable for the mammals would perhaps be the so-called "natural rafts," or masses of vegetation dislodged from the banks of great rivers, during floods, and drifted out to sea. The probabilities of this method of distribution he has discussed in his "Climate and Evolution" (*Ann. N. Y. Acad. Science*, xxiv, 1915). With regard to the rest of the fauna, he says that for birds and bats, for the smaller reptiles, amphibians, fishes, and invertebrates, the problem of oversea transportation is a much simpler one, and that tropical storms, as Wallace pointed out, probably play a principal part in transportation of very small animals or their eggs.

Atlantic Bridge between North America and Africa.—In order to account for the known palæontological history and present distribution of mammals, many authors have assumed the existence of trans-Atlantic "land bridges" at various periods during the Tertiary. The latest defender of a trans-Atlantic land bridge is L. Joleaud, of the University of Paris. His studies of the late Tertiary and Quaternary mammals of North Africa, together with certain geologic data, lead him to conclude (*Comptes rendus*, 168, 1918, pp. 177, 310, 412, 955) that shortly before the Upper Miocene there was a line of emerged land extending from the West Indies to Spain and Morocco. Across this the *Hipparions* traveled from Florida to Europe and Africa, at the same time spreading also in an opposite direction to California. Shortly afterward the hippotragine antelopes followed the same route. Reactions of American palæontologists to this hypothesis may be awaited with interest.

Palæopathology.—The geologic history of disease is treated by R. L.

Moodie, who is attempting a "synthesis of palæontology and medical history," in a number of articles published during the last two years (*Ann. Med. Hist.*, 1917, *Scientific Monthly*, Sept., 1918, *Am. Nat.*, Aug.-Sept., 1918, *Science*, Dec. 20, 1918). In large collections of vertebrate fossils a few bones showing pathological lesions will occasionally be observed. From a macrosmatic and microsomatic examination of these lesions Moodie has endeavored to identify the character of the disease that produced them. In his table entitled "Geologic Evidence of Palæopathology" he lists the forms of disease observed in their geologic sequence. He concludes "that disease is much more prevalent at the present time than ever before in the history of the world," and that according to present evidence disease is, from the geologic standpoint, of relatively recent origin, and has afflicted the inhabitants of the earth for only the last quarter of the earth's history, that is, according to Moodie's estimate, for the last 25,000,000 out of a possible 100,000,000 years.

BOTANY

B. M. DUGGAR

Physiology.—Increased attention is being devoted to the important problem of the carbohydrate economy of plants and carbohydrate metabolism. In this field Spoehr (*Carnegie Inst. Wash.*, *Publ.* 287) has contributed an epochal paper with reference to the properties of certain carbohydrates, their rôles and equilibrium relations in the cacti. Of particular interest is the report of glucuronic acid as a plant constituent and its relation to carbohydrate economy. The significance among hydrophilic colloids of pentosans is emphasized. Appleman and Arthur (*Jour. Agr. Research*, xvii, 137) have followed sugar depletion in green sweet corn during storage, determining the effects of different temperatures, the factors affecting sugar equilibrium, and the dominant rôle of polysaccharid condensation rather than respiration in the depletion process.

It has been found by Haas (*Bot. Gaz.*, lxvii, 347) that respiration (the evolution of carbon dioxide) by *Laminaria* after death may be greater than in the normal living condition, death in the experimental cases being induced by the action of alcohol and other killing agents. Fred, Peters, and Davenport (*Jour. Biol. Chem.*, xxxix, 347) give valuable data on the fermentation of xylose by bacteria isolated from silage, sauerkraut, and manure, a process not effected by the usual laboratory organisms. The main products are acetic and lactic acids. Williams (*ibid.*, xxxviii, 465) and Bachmann (*ibid.*, xxxix, 235)

give evidence that certain yeasts exhibit vitamine requirements for normal growth and fermentative activity. A new species of bacteria, *B. acetethylicum*, which produces primarily acetone and ethyl alcohol (from starch and sugar), is described by Northrup, Ashe, and Senior (*ibid.*, 1). Palmer and Kempster (*ibid.*, 299, 313, 331) fail to find any relation between plant carotinoids in the diet and the growth, reproduction, and fecundity of fowls, presenting also many subsidiary facts of interest respecting the influence of such carotinoids of plant origin on poultry pigmentation.

Progress in the study of plant pathology is most convincing when the physiological relations of host and parasite are considered. Recent studies emphasize the importance of this aspect, and the investigation made by Rose (*Bot. Gaz.*, lxvii, 105) of apple canker is an extended study of healthy and diseased apple bark with respect to changes in H-ion concentration and of oxidase and catalase activity, supplemented by appropriate chemical analyses. Particularly interesting determinations have been made by Webb (*Ann. Mo. Bot. Garden*, vi, 201) of the H-ion concentration most favorable to the germination of certain fungi, including several parasitic forms, the latter being notably dependent upon relatively high active acidity.

MacDougal, Richards, and Spoehr (*Bot. Gaz.*, lxvii, 405) from a variety of investigations, many of which were

made at the Desert Botanical Laboratory, conclude that in desert succulents many hexose polysaccharids are converted into pentosans with a high hydration capacity. This pentosan content is accompanied by permanent succulence, and instead of acidity being a direct result of succulence, it is more likely that high acid residues are related under these conditions to a metabolism favorable to pentose formation. Interesting growth relations and correlations in the lemon have been developed by Reed (*Jour. Agr. Research*, xvii, 153), who, recognizing the cyclic fruiting and vegetative activities of this tree, discusses the seasonal distribution of fruit buds, the relations of size and productiveness of inflorescences, the time period in fruit development as affected by the season of bud appearance, and the numerical ratio of flower buds to mature fruit. The importance of sulphur as a plant nutrient and the value of additional amounts in plant production is emphasized by Miller (*ibid.*, 87). The climatic factors preventing effective pollination of the plum are found by Dorsey (*ibid.*, 103) to be rain and low temperature, the former preventing pollen dissemination and the latter retarding pollen tube growth. In explaining certain growth relations in the Chinese lemon Reed and Halma (*Univ. of Cal. Publ. in Agr. Science*, iv, 99) advance the theory that apical shoots produce a growth-inhibiting substance which appears to move basally in erect shoots and downward in horizontal shoots, perpetuating a condition of dormancy in the buds to which it is accessible. Examining the effects of chlorides on plant growth, Tottingham (*Jour. Am. Soc. Agron.*, xi, 1) confirms the experience of previous investigators to the effect that the plant response in respect to chlorides is most diverse, dependent upon the kind of plant, climatic conditions, and doubtless upon a variety of other factors.

The second edition of Bechhold's valuable but bold attempt to apply more extensively the results of colloidal research in the phenomena of life has been translated by Bullowa (*Colloids in Biology and Medicine*). Three of the four parts of the work

are devoted to the properties of biocolloids and to the organism as a colloidal system, so that it is distinctly of physiological interest. Duggar and Dodge (*Ann. Mo. Bot. Garden*, vi, 61, 179) have utilized the colorimeter in the accurate determination of the H-ion concentration of pigmented or colored plant juices and decoctions. Considerable activity has been manifested in the study of the physiology of the fungi, and the following serve to indicate some of the directions of this research. Factors influencing the stimulative action of zinc sulphate is reported by Steinberg (*Bull. Torrey Bot. Club*, xvi, 1). Schmitz (*Ann. Mo. Bot. Garden*, vi, 93) points out that the decay of timber by rot fungi may be facilitated by the presence of ordinary bacteria of decay, but not by cellulose-dissolving forms. Growth relations of certain wood-destroying forms are developed by Zeller, Schmitz, and Duggar (*ibid.*, 137, 183, 193). Studying the fermentation organisms of California grapes, Cruess (*Univ. of Cal. Publ. in Agr. Science*, iv) finds that undesirable organisms enormously outnumber the true wine yeasts, a method of suppressing undesirable forms is suggested, and it is recommended (belated) that pure selected yeasts should be used in the wineries.

Morphology and Taxonomy of Thallophytes and Bryophytes.—A useful working key to the genera of North American algae has been prepared by Collins (*Tufts College Studies*, iv, No. 8). This provides a guide to genera, not involving technical classification, for the author's *Green Algae of North America* and for De Toni's *Sylloge Algarum* in respect to green, brown, and red algae. Gardner (*Univ. of Cal. Publ. in Bot.*, vi, 38, 487) has published further numbers of his "New Pacific Coast Marine Algae," describing 24 new species. As a result of careful and extended cytological study, Allen (*Proc. Am. Philos. Soc.*, lviii, 289) demonstrates the existence of definite sex chromosomes in *Sphaerocarpos*, which renders particularly desirable further studies on dioecious masses and likewise on dioecious algae. The studies of Wolfe (*Jour. Elisha Mitchell Scientific Soc.*, xxxiv, 78) elucidate problems of alter-

nation and parthenogenesis in *Pa-dina*, showing that tetraspores produce only male and female plants, and fertilized eggs produce tetrasporic plants.

The most conspicuous and detailed account of any subdivision of the Basidiomycetes published during the year is Kaufmann's illustrated *Agaricaceae* of Michigan (*Mich. Geol. and Biol. Survey Publ.*, 26). This work reveals a close study of living and dried material, and the author's interpretations will be appreciated by all mycologists. An illustrated contribution to the Hydnums of North Carolina by Coker (*Jour. Elisha Mitchell Scientific Soc.*, xxxiv, 157) will be helpful to all students of this group, which evidently is unusually well represented in that region. A timely service has been done by Overholts (*N. Y. State Museum Bull.*, "Rept. of the State Botanist, 1917," 67) in presenting an extensive and critical study of the species of *Poria* originally described by Peck, while House, and Dearness and House (*ibid.*, 32, 43) describe some new and interesting fungi of a variety of genera. Burt (*Ann. Mo. Bot. Garden*, vi, 143, 171, 175) adds to his earlier account additional notes on North American species of *Merulius*, distinguishes an edible garden *Hebeloma*, and describes a new *Protomerulius* characterized by more minute pores than those of any known species. Zeller and Dodge (*ibid.*, 49) contribute notes and descriptions of some new species in *Arcangiella*, *Gymnomyces*, and *Macowanites* of the order Hymenogastres. McDougall (*Bot. Gaz.*, lxvii, 258) finds that the development of *Stropharia epimyces* conforms in every way to that described by Atkinson and his students for *Agaricus* and for species of *Stropharia*, all being characterized by a hymenophore primordium which appears while the carpophore is still undifferentiated.

Blasdale (*Univ. of Cal. Publ. in Bot.*, vii, 101) lists 237 rusts from California, accompanying the list with geographical and descriptive notes, and Arthur (*Bull. Torrey Bot. Club*, xlvi, 107) continues his descriptions of new species of Uredineae. Beach (*Am. Jour. Bot.*, vi, 1) has demonstrated biologic specialization

in the genus *Septoria*, and inasmuch as such specialization has now been established for a variety of families, and since the existence of analogous forms has been established for certain saprophytic fungi, it may be assumed that the progress of research tends constantly to emphasize the significance of strains in the fungi generally. Studying the fungi cultivated by termites, Brown (*Philippine Jour. Science, C. Bot.*, xiii, 223) finds sterile *Xylaria*-like structures and assumes the presence of *X. nigripes*. At the same time he finds the agaric *Collybia albuminosa* growing from the nests, thus tending to confirm the earlier findings of Petch. The anomalous genus *Actinomyces* has been studied with much care by Drechsler (*Bot. Gaz.*, lxvii, 65). These notable soil organisms including the form of potato scab, were obtained from a variety of sources. Although several distinct structural types are found, the author establishes almost beyond controversy the fungous nature of these organisms; he finds no evidence for regarding them as representing a transition between the bacteria and the higher fungi, and assigns them to the hyaline Hyphomycetes. Tanner's *Bacteriology and Mycology of Foods* (Wiley) is rather less a compendium of "food microbiology" than selected chapters in technical mycology for advanced students in home economics. As such, however, it has a field of usefulness.

Morphology and Taxonomy of Vascular Plants.—Although taxonomic studies have been actively pursued during 1919, relatively little has been published in the way of regional floras. State and Federal encouragement of this type of work is much needed. With the assistance of other botanists of Washington, Hitchcock and Standley (*Contr. U. S. Nat. Herb.*, xxi) have completed a *Flora of the District of Columbia and Vicinity*. This publication is amply provided with keys for the determination of families and species, and an attempt is made to use such simple language that the layman may find the work of assistance in plant identification. The total number of species included is 1,630. A small flora of the pine belt of the San Antonio Moun-

tains (a natural subdivision of the San Gabriel Mountains) of southern California has been prepared by Johnston (*Plant World*, xxii, 71). Continuing his notes on new and noteworthy Philippine plants, Merrill (*Philippine Jour. Science, C. Bot.*, xiii, 263) describes 84 new species, widely distributed in the various families. The same author publishes notes (*ibid.*, 123) on the flora of Loh Fau Mt., Kwangtung, China, from which it is apparent that the southern portion of China is entirely inadequately explored. He has also completed (*ibid.*, 67) the descriptions of new species of Bornean plants preliminary to the publication of a "bibliographic enumeration" of the Bornean flora. Continuing a report of the phytogeography of the Rocky Mountain region (*Bull. Torrey Bot. Club*, lxvi, 295) Rydberg treats in this paper the distribution of montane plants, and for the purpose divides the northern Rockies (northward of Wyoming) into eight districts and the southern Rockies (extending from the latter to northern New Mexico) into four districts. Of the 1,900 species found, less than 13 per cent. are transcontinental, and including the latter the number of species common to the Rockies and to the Pacific mountains is about 43 per cent.

The most extensive taxonomic monograph of the year is Volume 1 of a report on the *Cactaceae* by Britton and Rose (*Carnegie Inst., Wash., Publ.* No. 248, 1). This report covers the tribe Pereskieae and to a large extent the tribe Opuntieae. The work is copiously illustrated, and it is intended to make a complete investigation of the family, not limited to American species. Fernald (*Rhodora*, xxi, 1) maintains the desirability of treating in a broad way the genus *Arenaria* with the elimination as genera of several proposed segregates. He (*ibid.*, 41) reviews the distribution of *Pinus Banksiana* and *Thuja occidentalis*, reviving the discussion of the importance of the presence or absence of lime in plant distribution. Many additional notes have been published upon the New England flora, some of the

more important articles treating the section *Capillaria* of genus *Panicum* (*ibid.*, 110) and the common raspberry (*ibid.*, 89), of which five varieties and some additional forms are recognized, only one variety being new. The discrepancy between the taxonomic and the morphological systems in plant classifications is critically discussed by Conard (*Plant World*, xxii, 59), who offers a tabulation of orders and families for "mutual readjustment." The practical importance of the quadrat method of Clements in studying vegetation is urged by Weaver (*Plant World*, xxi, 267) as a check on superficial generalizations by the student worker.

Studying the embryo and seedling of *Dioon spinulosum*, a cycad unique in appearance, with an ovulate strobilus of great size, Sister Dorety (*Bot. Gaz.*, lxvii, 251) finds that the cotyledons vary from two to four in number, but the vascular strands of all the plant members differ in no marked degree from the general cycad arrangement. *The Living Cycads* (*Univ. of Chicago Press*) is a small book by Chamberlain which endeavors to present for the teacher and general reader the results of the author's wide experience in the field and laboratory with this group of tropical and subtropical plants.

In a very readable article Berry (*Plant World*, xxi, 284) discusses the geologic history of four leguminous trees, namely, locust (*Robinia*), honey locust (*Gleditsia*), the Kentucky coffee tree (*Gymnocladus*), and the Judas tree or red bud (*Cercis*), all belonging to the bean family (*Papilionaceae*), which is relatively young geologically, having attained maximum variation since the beginning of the Pleistocene glaciation. Berry (*Bull. Torrey Bot. Club*, xlvi, 285) also describes a new *Matonidium* from Colorado. This genus, together with the allied *Lacopteris*, usually regarded as related to the living family *Cyatheaceae*, has closer affiliations with the existing genus *Matonia*, the latter occurring in the Malay Peninsula and in Borneo. *Matonidium* is distributed in both hemispheres.

XXV. THE MEDICAL SCIENCES

PHYSIOLOGY AND PHARMACOLOGY

S. J. MELTZER

Shock.—Although shock ceased to be an urgent practical problem since the signing of the armistice in November, 1918, scientific interest in the subject has not ceased. An extended review of investigations of the shock problem and of theories of shock was given in the YEAR BOOK for 1918 (pp. 697-701). The physiological literature of the year 1919 contains numerous articles on shock, many of which will have to be noted in the present review of physiology and pharmacology (see also *Medicine*, and *Surgery*, *infra*).

Erlanger, Gesell, and Gasser, (*Am. Jour. Physiol.*, xlix, 90) produced shock by exposure and handling of the intestines and studied the course of arterial and venous (systemic and portal) blood pressures and the peripheral resistance. Peripheral resistance is in inverse proportion to the venous blood pressure. A fall of arterial blood pressure to 50 mm. Hg was taken as an indication of the presence of shock. Their results, briefly stated, were as follows: Arterial pressure may at first be slightly lowered. After some time the pressure begins to fall and continues to fall more or less steadily. The average time for coming down to 50 mm. is about four hours. The fall in the systemic venous pressure is insignificant. Portal venous pressure, however, falls continuously through the first two or three hours; it then ceases to fall or actually rises slightly until the arterial pressure has reached a comparatively low level, when the portal pressure again begins to decline. The peripheral resistance, both somatic and splanchnic, is increased at first, but at about the time the arterial pressure starts on its steady decline, the peripheral resistance begins to diminish, and by the time the

arterial pressure has reached 50 mm. Hg the peripheral resistance is below normal. But up to the time of death the vessels preserve some residual tone, and the vaso-motor center shows some slight reactivity. A considerable loss of fluid from the exposed bowel occurs as a result of transudation through the serous surface. The initial changes in the circulation can thus best be explained upon the assumption that the effective blood volume is reduced.

Erlanger and Gasser (*ibid.*, 151) studied by their methods the effects of temporary anæmia induced by partial occlusion of the vena cava (Janeway and Jackson) and by temporary obstruction of the aorta. With reference to the vena cava, Janeway and Jackson produced the occlusion by placing a thread upon the cava in the thorax, whereas Erlanger and Gasser compressed it between liver and diaphragm by means of a graded clamp. The results were practically the same, except that Janeway and Jackson state they obtained shock after 18 hours, whereas Erlanger and Gasser obtained it in a much shorter time, at an average of about five hours. They divide their experiments in two groups. In the first, larger group, while the cava is occluded, the rise in the venous pressure causes blood to accumulate in the veins, both systemic and portal, and the arterial pressure consequently falls. The vasomotor center, stimulated by the anæmia thus produced, immediately calls forth a peripheral constriction, but later the anæmia begins to tell on the center and its tone begins to give way. The moment at which this change takes place the tone is increased. The effective blood pressure, that is, the difference between the arterial and

venous pressure, is relatively large; the flow of blood, therefore, is relatively free. When the cava is unclamped within a few hours, the arterial pressure rises at once abruptly and then more and more slowly, but sooner or later, in less than an hour or two, the pressure begins to decline, which leads to death in the course of some hours. In the second group occlusion of the cava caused some elevation of the systemic, and an enormous elevation of the portal, venous pressure, which causes a marked reduction of the effective blood pressure. Evidently this reduction in the effective blood volume is the factor that accounts for the lower arterial blood pressure. At autopsy the mucosa of the small intestine is usually of a deep bluish red, and the capillaries and the venules of the villi are almost invariably enormously distended and solidly packed with red corpuscles. The aorta was partially occluded in the chest just beyond the origin of the left subclavian artery. In these experiments, therefore, the blood supply to the upper part of the body was not diminished. The fall of arterial pressure to the level of 50 mm. in these experiments is due to a reduction in the effective volume of blood. The gross lesions found in these animals were the same as in the animals with venous occlusion. The striking changes in both kinds of animals is the tremendous distention of the capillaries and venules of the intestinal villi with solid masses of red corpuscles. Erlanger and Gasser conclude from their experiments (1) that the failure of the circulation after both manipulations is in part due to the consequences of "sequestration" of corpuscles in the capillaries and venules, and (2) that the back pressure in the veins is not an essential factor in the production of shock.

Bainbridge and Trevan stated that shock can be produced in animals by the continuous injection of adrenalin for 20 minutes at such a rate as to keep the arterial pressure up to that attained by moderate stimulation of sensory nerves. They found that during the injection the arterial pressure rose to a high level, that the sys-

temic venous pressure either was not altered or fell, and that the portal pressure rose and remained at a high level. Bainbridge and Trevan believe that the shock in their experiments was brought about by the obstruction of the flow of blood through the liver. Erlanger and Gasser (*ibid.*, 345) repeated many experiments of Bainbridge and Trevan and gained considerable information bearing upon the so-called shock-producing action of adrenalin, and upon the action of massive doses of adrenalin in general. In the course of their investigations they were led to study the effect upon the circulation of injecting into the portal vein toward the liver a suspension of lycopodium spores and thus interposing a high resistance to the passage of the blood through the liver. Their results are as follows: With regard to the action of adrenalin, it may be said that in general they confirm the statement of Bainbridge and Trevan, namely, that a prolonged injection leads to a shock-like condition in which the venous systemic pressure shows no constant alteration, whereas the portal pressure is markedly increased during the injection and may remain high subsequently. At the same time they present evidence that accumulation of blood in the portal area as a result of the increased portal hepatic resistance is not in itself the cause of the failure of the circulation; for marked obstruction of the hepatic radicals in the liver by the injection of a suspension of lycopodium spores may not lead to the shock-like failure of the circulation that is seen after adrenalin. Erlanger and Gasser believe that the failure of the circulation is to be attributed to the extreme slowing of the blood flow throughout the body caused by the constricting action of adrenalin on the arteries. They come to the conclusion that the cause of the circulatory failure brought about by adrenalin is the same as after temporary partial obstruction of the vena cava or of the aorta. This conclusion seems to be justified by the fact that the most striking lesion found in animals dying as a result of any of these three procedures is alike; it consists in a tremendous engorge-

ment of the capillaries and venules of the villi of the intestines.

In Gesell's studies (*ibid.*, xlvii, 468) shock is considered in a very general way as a combined circulatory and nutritional disturbance, resulting from a number of forms of tissue abuse, which, if left to run their course, may lead to death. Gesell divides the causes of shock into initiating and sustaining factors and lays a great deal more stress upon the volume flow of blood in shock than upon the mean blood pressure. The two do not have a parallel course; for instance, a reduction of volume flow amounting to 85 per cent. of the initial flow may occur with a constant head of pressure or with a small change in head of pressure, a rise as well as a fall. The sudden decrease in volume flow may after a time be as suddenly checked; with a further fall in pressure the flow may for a time remain constant, decrease, or even increase. The initial decrease in volume flow far exceeds that occurring during the subsequent fall of pressure to zero. Gesell compared further the effects of hemorrhage with that of tissue abuse. Hemorrhage and tissue abuse have many points in common, but there are also clear points that distinguish the two conditions. Hence, similar principles of treatment with certain modifications may be applied to hemorrhage and to shock.

E. L. Porter (*ibid.*, 208) studied the effect of primary shock produced by drawing out the intestines and manipulating them with the fingers upon the thresholds of flexion and of crossed-extension in decerebrated cats. Flexion threshold reflex is raised by intestinal manipulations; the rise begins very promptly, but it returns to the initial threshold upon the cessation of the manipulation. (The rise often fails—11 times in 24 experiments.) The rise in the threshold is not due to low blood pressure; flexion threshold rise often coincides with a rise in blood pressure, and the return of the threshold to the initial state often occurs while the blood pressure continues to fall. The rise of the crossed-extension threshold is much greater than the rise of the flexion threshold. The return to the

initial threshold is the same in both. The rise of the threshold brought about by intestinal manipulations in decerebrated animals may possibly be a phenomenon of inhibition.

In his studies on experimental surgical shock Mann (*ibid.*, 231) brings out two points of interest. First, even under a very deep state of anesthesia in which stimulation of the central end of the vagus and the respiratory center do not react to CO₂, the stimulation of the inhibitory nerves of the respiration (central end of the laryngeal superior or vagus nerves) respond promptly with inhibition of respiration which may lead to the death of the animal. Mann is inclined to look upon this action of ether as an increase of the inhibitory function of the respiration (Meltzer). Second, all the tissues of one leg were ligated except the corresponding artery. The removal of the ligature was followed by manifestations of shock symptoms. Mann assumes that the shock-like manifestations are brought about by the absorption of toxic substances from the abused tissues of the ligated leg.

Stewart and Rogoff (*ibid.*, xlviii, 22) studied the output of adrenin in shock. There are statements in the literature to the effect that in conditions of shock the output of adrenin is much increased. In some cases it may be even more than 32 times the initial output. Stewart and Rogoff think that these statements are based upon faulty experimentation. In their own studies they found that the rate of output of adrenin in dogs and cats after the blood pressure had been permanently lowered by exposure and manipulation of the intestines, by partial occlusion of the inferior vena cava, by hemorrhage, and by "peptone" injection, was the same as before the lowering of the blood pressure.

Gasser, Erlanger, and Meek (*ibid.*, l, 31) studied blood-volume changes and the effect of gum acacia upon their development in shock brought on by injections of adrenalin, by clamping the aorta or the vena cava and by exposure and manipulation of the intestines. They found that the blood volume was decreased in all forms of experimental shock and after

all grades of damage. The effective volume of the blood may be reduced either by dilatation of the capillaries and small veins with greatly decreased slowing of the circulation or as the result of transudation of plasma, or transudation of plasma and jamming of the corpuscles in the capillaries and venules, or the latter combined with absolute stasis in some part of the vascular system or by hemorrhage into the tissues, especially into the lumen of the intestines. They found further that the transudation of plasma is greatly opposed by injection of 4 cc. per kilogram of 20 per cent. acacia before traumatization.

—In the foregoing experiments two facts were brought to light, namely, that a decrease of blood volume is an essential factor in all forms of shock, and that an intravenous injection of a concentrated solution of gum acacia tends to prevent the concentration of the blood. These facts induced Gasser and Erlanger (*ibid.*, 104) to study the best means for restoration of the plasma volume. Their experiments led them to the following results. When glucose in 18 per cent. solution is injected into the circulation of a normal animal, the blood returns to its normal circulation within five to 45 minutes. When gum acacia in a concentrated solution is injected, the decline of the blood volume to normal requires $2\frac{1}{2}$ to six or more hours. When the concentrated acacia is immediately followed by an injection of glucose, the effect is much greater than that resulting from the injection of either of the two substances alone. Comparable results were obtained in animals in shock when a strong solution of gum acacia is followed by a solution of Na_2CO_3 , which is isosmotic to 18 per cent. glucose. This mixture offers the advantage that it sustains the alkali reserve.—In a statistical study of the treatment of measured trauma Erlanger and Gasser (*ibid.*, 119) sought to establish the most favorable mixture of solutions of gum acacia and crystalloids. They employed the partial occlusion of the inferior vena cava as the standard damage. Forty-eight per cent. of untreated animals died within 48 hours. The administration of mixtures of acacia with

sodium bicarbonate did not affect the mortality, or rather increased it slightly. They finally found that a solution consisting of 25 per cent. gum acacia in 18 per cent. glucose given 5 cc. per kilogram of body weight an hour proved to be the most favorable mixture. Under the administration of this mixture the mortality decreased to 24 per cent. within 48 hours. They believe that their results indicate that bicarbonate and the high viscosity of a strong acacia solution are somewhat harmful in traumatized animals; that the harmfulness of the strong viscid gum can be avoided in part through the osmotic action of hypertonic glucose subsequently injected but not by bicarbonate; and that when hypertonic gum and the hypertonic glucose are given simultaneously and slowly so as to avoid altogether the period during which the high viscosity of the gum is hampering the circulation, a maximum saving of life can be effected. Erlanger and Gasser (*Ann. Surg.*, lxxviii, 389) report that their mixture was employed in 11 men with a favorable result.

Mann (*Am. Jour. Physiol.*, 1, 86) has an article on the treatment of the condition of low blood pressure that follows exposure of the abdominal viscera. Experimentally he found that heat is useful, rebreathing was of no importance, and none of the drugs usually employed in the treatment of shock was very effective. The best results were obtained from injection of fluid media. The data of his experiments justify the conclusion that none of the artificial solutions gives such good results as the use of blood.

Blood Coagulation.—Recent work on blood coagulation indicates that at least six different substances are concerned in this process, namely, fibrinogen, thrombin, prothrombin, calcium, antithrombin, and thromboplastic substances. As to the last mentioned factor, evidence has been obtained to show that the active material in tissue extracts is a phosphatid (cephalin). According to Howell and Holt (*ibid.*, xlvii, 328), two more substances have to be added to the list of fibrin factors. The two new substances are designated heparin

and pro-antithrombin. (1) Heparin is obtained most readily from the liver; it is not destroyed at a temperature of 100° C. It possesses two characteristic reactions: first, it retards or prevents the coagulation of blood both in the body and in the shed blood; second, it causes a marked increase in antithrombin when added to blood or serum. It inhibits clotting mainly by preventing the activation of prothrombin to thrombin. (2) The mother substance for antithrombin, the pro-antithrombin, is present in plasma and serum in considerable amounts. It is converted promptly to antithrombin by heparin. Pro-antithrombin in blood plasma is destroyed promptly by heating to 70° C.

Internal Secretions.—By a series of experiments on dogs and monkeys in which the right adrenal was excised and the nerves of the left adrenal cut, Stewart and Rogoff (*ibid.*, xlviii, 397) have demonstrated that the liberation of epinephrin from the adrenals is not indispensable for life and health. Similar results were obtained by them in previous experiments upon cats and rabbits.

Investigating the action of drugs upon the output of epinephrin from the adrenals, Stewart and Rogoff (*Jour. Phar. and Exp. Ther.*, xiii, 95)

found that strychnin causes a marked increase in the output of epinephrin from the adrenals (in the dog and cat), and that the increase is not transient but persists for a considerable time.—The same authors found (*ibid.*, 167) that the intra-vascular injection of small volumes of concentrated solutions of sodium carbonate causes a temporary increase in the rate of liberation of epinephrin from the adrenals. They believe that this increase is presumably due to the stimulation of the nervous mechanism that governs the epinephrin output.—In their studies of nicotin Stewart and Rogoff (*ibid.*, 183) found that, generally speaking, the nicotin effect upon the epinephrin output is the converse of the strychnin effect. The predominant and by far the most durable influence of nicotin, whether administered intravenously or hypodermically, upon the epinephrin output is a depressant or paralyzing action. The depressant action is preceded by a transient stage of excitation, lasting, as a rule, in these experiments not longer than from a half-minute or less to a minute. In this stage the rate of the epinephrin output is remarkably increased. The brief stage of excitation passes rather abruptly into the much more durable stage of depression.

PATHOLOGY AND BACTERIOLOGY

MARTHA WOLLSTEIN

Yellow Fever.—The most important and original contribution made in the field of bacteriology in the year 1919 is the isolation of the organism that causes yellow fever. As a member of the yellow-fever commission of the International Health Board Noguchi went to Guayaquil, Ecuador, in the summer of 1918. As a result of his investigations the etiology of yellow fever has been determined. By inoculating blood taken from patients in the first week of an attack of yellow fever Noguchi was able to transmit the disease to a limited number of guinea pigs. In the blood, liver, and kidneys of animals thus experimentally infected a minute organism was demonstrated and given the provisional name of *Leptospira icteroides*. In pure culture this organism

is capable of producing symptoms and pathologic changes in guinea pigs similar to those caused by the injection of the blood of yellow-fever patients, and these lesions and symptoms closely parallel those of human yellow fever. They are more pronounced in guinea pigs than in dogs or marmosets.

Some of the animals that escaped a fatal infection with the blood of yellow-fever patients, developed mild jaundice and fever, and the majority of such pigs resisted later infection with an organ emulsion or a passage strain of *Leptospira icteroides*. They were thus shown to have developed an immunity from the first inoculation.

Noguchi found that only very small numbers of *Leptospira icteroides* could be demonstrated in the blood

of yellow-fever subjects, either by the dark field or by stained films. From three patients out of 11 who were tested *Leptospira icteroides* was cultivated directly from the blood. The urine in 14 cases, on the other hand, did not show the organism by dark-field examination, and in only one instance did suggestive symptoms result from animal inoculation with urine. In contrast to human cases, experimentally infected guinea pigs always show *Leptospira icteroides* in the blood, liver, and kidneys 72 hours after infection, and sometimes as early as 48 hours. The organisms cannot be detected by the dark field, however, until the fifth day, and they are most abundant on the sixth or seventh, after which they become fewer and disappear before death occurs.

Leptospira icteroides passes through the pores of Berkefeld filters V and N. It grows well at 25° to 26° C., and remains viable for several months without losing its virulence when kept at this temperature under suitable conditions. At 37° C., on the other hand, it dies out within a few weeks, although it grows more quickly. The virulence attained by some strains is so high that 0.00001 cc. of a culture could cause typical fatal infection in guinea pigs. The organism is killed within 10 minutes at 55° C.; complete desiccation, or freezing and thawing, destroys it. Bile and bile salts dissolve the organism, but saponin does not.

The presence of immune substances in the form of lysins and protection bodies was demonstrated in the serum of patients recovering from yellow fever by inoculating guinea pigs intraperitoneally with a mixture of convalescent serum and the organism, either in pure culture or in the form of an organ emulsion. Eighty-three per cent. of the animals gave a positive Pfeiffer (lytic) phenomenon, and ultimate protection was afforded some of them. (*Jour. Exp. Med.*, xxix, 547, 565, 585; xxx, 1, 9, 13, 87.)

Noguchi completed his study by confirming the long known fact that the stegomyia mosquito is the carrier of yellow-fever infection. Although very few mosquitoes become carriers, because *Leptospira* circulates in the blood of patients in such small num-

bers, it is nevertheless true that one infected mosquito may bite and infect many persons. (*Ibid.*, xxx, 401.)

Influenza.—Although a great deal has been written on the subject of influenza during the year, no new contribution to our knowledge of the etiology of the disease has been made. Lord (*Jour. Am. Med. Assoc.*, lxxii, 188) "finds no justification for the belief that the epidemic was due to *B. influenzae*." Howard (*Bull. Johns Hopkins Hosp.*, xxx, 13) is emphatic in his statement that *B. influenzae* is not the cause of epidemic influenza. Park (*Jour. Am. Med. Assoc.*, lxxiii, 318) is equally certain that Pfeiffer's bacillus cannot be the cause of the epidemic of 1918 because of the multiplicity of strains demonstrated by his studies on the agglutination reactions of the bacilli isolated from patients before and after death. Lucke, Wight, and Kime (*Arch. Int. Med.*, xxiv, 154) believe that *B. influenzae* is at least the most important indicator of epidemic influenza. Spooner, Scott, and Heath (*Jour. Am. Med. Assoc.*, lxxii, 155) not only found that organism in a high percentage of cases studied, frequently in pure culture, but also report the presence of specific agglutinins for Pfeiffer's bacillus in the serum of patients convalescent from the disease. Rapoport (*ibid.*, 633) was able to demonstrate immune bodies to *B. influenzae* in 54.5 per cent. of patients convalescent from influenzal pneumonia, while control sera contained such antibodies in only 9.6 per cent. Kolmer, Trist, and Yagle (*Jour. Inf. Dis.*, xxiv, 583) found that normal, healthy adults gave no evidence of the presence of antibodies to the Pfeiffer bacillus in their blood, but 40 to 50 per cent. of influenza patients did show such immune bodies in the form of complement fixation reactions. A smaller number of persons ill with influenza, only 38 per cent., had demonstrable antibodies to streptococci and *Micrococcus catarrhalis* in their blood. It is clear that until more clean-cut and constant immune reactions to Pfeiffer's bacillus shall have been proven in the serum of patients convalescent and recovered from influenza, and until the disease itself, not only the complicating pneu-

monia, shall have been produced in animals, that organism cannot be accepted as the cause of influenza.

A contribution to the biology of Pfeiffer's bacillus was made by Jordan (*Jour. Am. Med. Assoc.*, lxxii, 1542), who found that the majority of strains of this bacillus form indol.

Pneumonia.—An excellent description of the pathology of influenzal broncho-pneumonia is given by Le Count (*ibid.*, 650). He finds the distinctive features to be the comparatively small amount of lung substance that is solid; the large amount of blood-stained fluid in the larynx, trachea, bronchi, and often in the pleural cavities; the small amount of fibrin in the exudate; and the hemorrhagic nature of the inflammation in the early stages, with its phlegmonous character later. The lining of the medium-sized and small bronchi is red at first; later it becomes necrotic, with the presence of thin mucopus.

E. G. Stillman (*Jour. Exp. Med.*, xxix, 25, 1), by means of specific agglutination reactions, was able to recognize 12 subgroups of atypical Type II pneumococcus. Some of these subgroups occur in normal mouths and others are met with in lobar pneumonia, in which disease they cause a mortality of 32 per cent. The recognition that such subgroups of atypical pneumococci exist is most important in connection with the serum treatment of lobar pneumonia.

Encephalitis Lethargica.—During the year cases of encephalitis lethargica, erroneously named "sleeping sickness," occurred in various parts of the United States. Similar cases had been reported in England and France in 1918, and in Vienna in 1917. A relation to influenza was suggested by the occurrence of cases of this rare form of encephalitis during or soon after the recent epidemic and that of 1890, but no etiological connection between the two diseases could be established. The gross lesions found in the brain at autopsy consist of congestion of the meningeal vessels and minute hemorrhagic areas, rarely confluent, in both the gray and the white matter of the subthalamic area, throughout the mesencephalon, and in the aqueduct. Microscopically

perivascular exudation was seen and also diffuse infiltration of the parenchyma with consequent degeneration of some nerve cells. Less marked lesions of a similar nature may be found in the cortex (Wegeforth and Ayer, *Jour. Am. Med. Assoc.*, lxxiii, 5). It is generally conceded that this form of encephalitis is not a manifestation of poliomyelitis. The etiology of the disease is naturally the point of greatest interest. Wegeforth and Ayer inoculated monkeys with material from human cases and obtained only negative results. Strauss, Hirshfeld, and Loewe (*N. Y. Med. Jour.*, cix, 772) reported successful experiments with monkeys, in which they produced the clinical symptoms and the lesions of encephalitis lethargica by inoculating human material obtained from the nasopharynx during life and from the brain after death. Loewe and Strauss (*Jour. Am. Med. Assoc.*, lxxiii, 1056) succeeded in cultivating a small, globoid, filtrable organism from inoculated animals. The organism has been carried to the twelfth generation, and the lesions its inoculation causes in monkeys and rabbits are identical with those found in human beings who have died of the disease. These results require confirmation, especially as the experiments reported in detail (*Jour. Inf. Dis.*, xxv, 377) are not conclusive. (See also *Medicine*, *infra*.)

Streptococci.—A contribution which marks a real advance in our knowledge of streptococci was made by Dochez, Avery, and Lancefield (*Jour. Exp. Med.*, xxx, 197) as the result of a study of human strains of *Streptococcus hæmolyticus*. These observers were able to identify four biological types of the organisms by means of immunological differences, as shown by agglutination and protection reactions. They encountered two other types and found indications to show that more exist.

Havens (*Jour. Inf. Dis.*, xxv, 315) goes a step further than Dochez, Avery, and Lancefield when he classifies hæmolytic streptococci, according to practical serological tests, into three groups, against each of which he has made a specific protective serum for mice. These three

groups constituted 93 per cent. of the 292 strains studied, and Havens believes that all infections with hæmolytic streptococci should be classified. The cultures he studied were isolated from the throats of healthy carriers as well as from patients having bronchitis, measles, and tonsillitis, and also from the sputum in pneumonia and the pus from cases of empyema, gunshot wounds, and renal infection.

In addition to a type of *Streptococcus hæmolyticus* which is pathogenic for man there is a bovine type which occurs constantly in milk and dairy products. The two types differ in hæmolytic activity and in pathogenicity for rabbits, and it has been noted that non-pathogenic strains produce more acid in carbohydrate media than do the pathogenic varieties. Avery and Cullen (*Jour. Exp. Med.*, xxix, 215) found that the hydrogen ion concentration at which human strains of *Streptococcus hæmolyticus* cease to grow is different from that which limits the growth of bovine strains, being p H 4.5 to 5.3 and p H 4.3 to 4.5, respectively. Since it is often both necessary and convenient to know whether an isolated strain is harmful or not, this method may be applied as a presumptive test to differentiate the human from the bovine strains of *Streptococcus hæmolyticus*.

Bacillus Egens.—Stoddard (*ibid.*, xxix, 187) cultivated an hitherto undescribed anaërobic bacillus from the infected muscle tissue of a wounded soldier whom treatment with anti-gas-bacillus serum had failed to save. *B. egens* differs from *B. Welchii* in its fermentation reactions. Glucose is the only sugar which it ferments rapidly; maltose and saccharose are slightly attacked, and milk not at all. From *B. fallax* the new organism differs by its lack of motility, and from *B. œdemaciens* because it lacks proteolytic power and forms no spores. *B. egens* is pathogenic for guinea pigs and somewhat less so for rabbits. In human muscle it produced a lesion resembling that caused by *B. Welchii* but without hemorrhages.

Leucocytes.—Murphy and Sturm (*ibid.*, 1) studied the effect of dry heat on the blood count of mice, rats,

and guinea pigs. They found that after an initial fall in total leucocytes there is a slow recovery on the part of the polymorphonuclear cells lasting several weeks. The lymphocytes rise rapidly after the initial fall, continue to rise for several weeks, and often show an increase of 200 to 300 per cent. above the count that is normal for the animals. Amitotic division in the circulating lymphocytes was noted. These investigators applied the above results to the question of cancer immunity (*ibid.*, 25), and were able to show that the stimulation of lymphoid elements induced by dry heat establishes a high degree of immunity to certain transplantable cancers in mice. The animals that had been subjected to dry heat also developed a marked resistance to large doses of bovine tubercle bacilli.

Nakahara (*ibid.*, 17) demonstrated the fact that the source of the lymphocytosis induced by means of heat is the enhanced proliferative activity of germinal centers in the spleen and lymph glands, as a reaction to the destructive effect of heat upon the lymphoid cells.

Mustard-Gas Inhalation.—Covey and Barron (*Am. Jour. Med. Science*, clvii, 808) studied 35 cases of mustard-gas inhalation. They found that the respiratory tract is attacked from the tip of the epiglottis to the bronchioles and air vesicles. The lesion is a fibrino-purulent inflammation, with the formation of a false membrane very similar to that usually seen in diphtheria. Beneath the false membrane the surface of the mucosa is hemorrhagic, and shallow ulcers are present. In cases of long standing the pseudo-membrane tends to disappear and the ulcers become more marked. The lungs are the seat of emphysema, broncho-pneumonia, and necrosis. Healing of the tracheo-bronchial ulcers causes areas of thickening and contracting scars, while in the lung parenchyma areas of fibrosis accompany the healing process. Consequently soldiers who recover from gas attacks may have only a chronic bronchitis, or they may present more severe pulmonary symptoms, difficult to differentiate from pulmonary tuberculosis.

MEDICINE

HARLOW BROOKS

Medical Science and the War.—As during the preceding two years, most of the advanced work in medicine during 1919 has had chiefly to do with the diseases and problems of troops. With the return to civil life of the physicians and scientists who have been occupied with Government work for the past two or three years, an active revival of advance in purely scientific and civil medical problems is now confidently to be expected in the United States.

Great benefit has doubtless followed the general interest of physicians in the medical and sanitary problems of the army, and the study of disease in bulk, such as has been possible in the large camp and embarkation hospitals, has contributed much to our knowledge of many conditions. Every physician who has enjoyed these opportunities returns to his civil problems with a certain amount of regret that he is no longer able to continue his study under the favorable conditions which the Army hospitals presented for those truly interested in the humanitarian and practical problems of scientific medicine.

Communicable Diseases in the U. S. Army.—One of the most valuable medical studies of the war is that of V. C. Vaughan and George C. Palmer concerning the communicable diseases in the U. S. Army during the summer and autumn of 1918. The great value of the study lies in its careful analysis of a tremendous volume of records concerning the contagions under the careful and discriminating eye of the foremost sanitarian of America. The statistics were collected from all the great Army camps in the United States, and the information thus derived forms a permanent basis for all future epidemiological consideration of these diseases in America at least. The report is published in the *Journal of Laboratory and Clinical Medicine* for August, 1918, and July and August, 1919.

The hasty assembling of groups of 27,000 or more young men in relatively close association under the un-

usual, and to a certain degree unfavorable, conditions of active military life favored to a high degree the dissemination of all manner of contagious diseases. This was further emphasized when, later on, either in mobilization camps or on transports, men from all sections of the country were assembled and mingled intimately. Vaughan and Palmer point out the grave medical significance of this close contact of large groups of men from so wide a geographical distribution. They illustrate it with so mildly contagious a disease as pneumonia, showing that the close association of men from different localities, by the mixing of the infections rife at the various camps, increased in many instances the fatality of the disease. It appeared also that instead of an attack of pneumonia conferring an immunity, the soldier was rather sensitized to infection with other types of pneumonia-producing organisms, so that recurrent cases were more than customarily frequent, and the complication rate, as well as that of occurrence, was also greatly increased.

During the winter of 1917-18 measles was 19 times as prevalent in the training camps as in civilian life during the same period; pneumonia, 12 times as prevalent; meningitis, 45 times; scarlet fever, six times; and diphtheria, twice. This, of course, was due in large part to the collection, as it were, of much of the susceptible material of the entire country into compact groups favoring disease transmission, though doubtless due also to a considerable degree to the fact that the unfavorable conditions which existed in many camps at that time favored the dissemination of the diseases. Although the best sanitary and medical advice was available, it was apparently unheeded occasionally in the construction and sanitary control of certain of these Army encampments.

It is a pleasing contrast to be able to state that tuberculosis was 13 times more prevalent in the civil than in the military population, this favorable showing being due to the

satisfactory elimination of the tuberculous in the medical examinations of the volunteer and drafted organizations. It was also found as was to be expected, that venereal diseases in the Army were far less frequent than in the unrestricted and uncontrolled civil community. Notwithstanding unsatisfactory sanitary conditions in many instances, typhoid and paratyphoid fever were practically negligible in the domestic army, due unquestionably to the anti-typhoid-paratyphoid vaccination. The occurrence in the unvaccinated civil population of these, formerly the most important military diseases, was incomparably greater during this period, and the few instances in the Army were definitely from infections received in civil life. It is pointed out, however, that measles was practically unchecked by any sanitary regulations that were capable of enforcement. Malaria, on the other hand, which has previously been one of the most serious diseases in military organizations, was shown to be definitely controllable. We must, however, take into account that the malaria-bearing mosquitoes were practically unknown in France and in Flanders, and thus in the A. E. F. practically only recurrent cases of this formerly formidable disease were to be dealt with.

The Vaughan and Palmer report shows that during the autumn months of 1918 one out of every four men in the camps in the United States suffered from influenza, and due principally to this important predisposing factor, one out of every 24 men encamped in this country had pneumonia. Really accurate statistics on this point will never be available as to the A. E. F., but it is fair to assume at least that influenza was equally prevalent in the camps overseas. As a result of the combined effects of influenza and pneumonia during this period one out of every 67 men in the home military camps lost his life.

These diseases were naturally more prevalent in some camps than in others. Vaughan and Palmer state that in seven weeks pneumonia and influenza killed 3.1 per cent. of the strength at Camp Sherman, at Chilli-

cothe, Ohio, compared with the average for all the home camps of 1.4 per cent.; attributable, as this and other studies seem to indicate, to high susceptibility and to climatic conditions, as well as to more controllable factors. Notwithstanding the unprecedented deaths from influenza and pneumonia during the fall of 1918, it is striking to note that during the Spanish-American War typhoid fever killed during four months 1.5 per cent. of our troops. Many other factors, of course, probably enter into the comparison, but one of the greatest and of unquestionable importance lies in the fact that in the Great War practically the entire sanitary and medical talent of the country was enlisted in the service, a much more satisfactory condition, hampered though it was occasionally, than was possible in 1898, when the civil medical profession was practically unheeded. (See also *Public Health*, *infra*.)

Vaughan and Palmer discussing the influenza epidemic state that the largest single factor concerned in the spread of influenza is the susceptibility of the individuals among whom it is introduced. Natural immunity, however, gives way before exposure, overwork, and fatigue, and the importance of mixed infection is emphasized by these investigators, as well as by all other physicians of similar training. They state further that prevention, such as quarantine, spreading of personnel, and closing places of assembly delayed the progress of the disease but failed to prevent it wholly. A very interesting and suggestive fact borne out by this study is that rural men are more susceptible to influenza and pneumonia than urban peoples. One of the most important conclusions is that, in so far as army sanitarians are concerned, it is now pneumonia and meningitis against which the greatest efforts must be directed.

Vaughan and Palmer, summing up the relative experiences in the A. E. F. and the home army, state that disease was more frequent at home, the exceptions being dysentery, meningitis, and scarlet fever. There was more disease in the home army because the men were more susceptible,

and they were more susceptible simply because of the greater proportion of new men. The new, unseasoned recruit was responsible for more sickness than was caused among seasoned men by the hardships of physical and mental fatigue and exposure of combat; in other words, "the natural susceptibility of the individual is a greater factor in the causation of disease than environment."

Shock.—One of the most important contributions to the medicine of the war from the standpoint of worth in saving life, as well as because of its great scientific value, was the work and teaching of Cannon and his associates on shock at the central laboratories at Dijon, France. Although much remains to be proved before Cannon's theories as to the cause of shock (*A. Y. B.*, 1918, pp. 700, 709) can be fully substantiated, the important fact remains that the management of shock was probably more thoroughly studied and comprehended in the A. E. F. than any other medical subject. Cannon and his associates conducted at Dijon an intensive course of instruction for the medical officers of the A. E. F. Physicians so trained and especially skilled in the management of shock were distributed, among the field and evacuation hospitals at the immediate front. The work of this small group, with the sum of their clinical and experimental studies, performed a tremendous service in the improvement of shock treatment and in the saving of life.

Finney, Cannon, and their associates early demonstrated the great practical utility of blood transfusion in the treatment of shock, and devised an equipment and technique for its employment under actual battle conditions which was so simple and efficient as to make it practical where more complicated methods must have failed. One of the most important steps in this procedure was a quick method for the typing of blood, by which it was possible within a few minutes to determine the compatibility of the blood of donor and receptor, so that accidents following transfusion, even under the most pressing and hurried conditions, were very infrequent. It was possible at

the same time to collect and retain suitable bloods for a period of time and until proper cases appeared for their use. The experience of the men who had charge of this work has demonstrated conclusively the great value of blood transfusion in practically all cases of shock, and the simple citrated blood method makes it now possible to utilize the procedure under very primitive conditions.

The scientific staff at Dijon made an especially elaborate study of gum salt fluid for injection in lieu of blood in suitable cases. Theoretically, and on experimental animals, this preparation possesses many characteristics that should apparently make it considerably more valuable than the usual saline infusion; especially it appeared less likely to be rapidly excreted and more nearly to approach the characteristics of the blood serum, particularly in its mechanical effects, and thus likely to be longer retained in the blood stream. Great diversity of opinion still exists with regard to the value of the preparation. In general it may be said that physicians working on the problem at the front were the less enthusiastic as to its effects, whereas those working in the larger and better equipped institutions in the Zone of Advance and the S. O. S. report better results. Among the former are certain officers who report definitely bad results. Analysis of most of these reported instances however, leaves a large margin of doubt as to the harmfulness of the procedure; most of these physicians preferred the older saline solution or the introduction of fluid by the stomach or bowel when blood transfusion was not desirable or permissible. On the other hand, many enthusiasts for the method are still reported, but clinically it cannot be accepted as of proven value. (See also *Physiology and Pharmacology, supra*, and *Surgery, infra*.)

Typhoid Fever in the Vaccinated.—The experience of the war abundantly demonstrated the efficacy of anti-typhoid and para-typhoid vaccinations. In home camps, according to V. C. Vaughan (*Jour. Lab. and Clin. Med.*, July, 1919), typhoid fever was practically absent except in those cases which received the infection be-

fore entering the camps and were vaccinated after infection had already taken place. In the A. E. F., on the contrary, massive dose infections occurred in many instances, due to unsanitary conditions in most cases unavoidable, but in some instances blamable to a false sense of security in the vaccination which induced carelessness in officers unfamiliar with the necessity and methods of practical sanitation. It will never be possible to ascertain accurately the number of cases of typhoid fever which occurred in the A. E. F. It is certain that they were much more frequent than the statistics at hand indicate, and at least 2,000 cases are known to have occurred. Many cases were unrecognized, even a few at autopsy, because of the lack of requisite facilities for accurate diagnosis largely and because many of the cases ran a course quite atypical when compared with unvaccinated typhoid. The fact that the Widal reaction could not be utilized generally was also a serious drawback to correct early diagnosis, though later quantitative methods were devised, which, however, were not often available in the more forward hospitals. The typical clinical picture which typhoid and para-typhoid fevers ordinarily present in the unvaccinated is considerably modified in the vaccinated, and diagnosis from the clinical manifestations alone is often most difficult, especially in the presence of such other epidemic diseases as dysentery and certain types of influenza.

It is clear that although typhoid fever and para-typhoid are prevented by vaccination in by far the larger number of cases and that vaccination is practically perfect under the sanitary conditions that prevail in America, under such unsanitary conditions as develop under battle conditions or in war-devastated areas it does not absolutely protect when the inoculating dose is massive. The disease when it occurs in the vaccinated differs so materially from the usual clinical form that in many such instances its diagnosis without the assistance of a well equipped laboratory is difficult. Frequent re-vaccination, that is, at yearly or semi-yearly intervals, apparently greatly

increases the resistance against massive infection. Pezzi (*Reforma Medica*, April 19, 1919) reports that the death rate in vaccinated Italian soldiers was slightly higher than in the unvaccinated, perhaps because of the usually later diagnosis. (See also *Public Health*, *infra*.)

Influenza.—The world-wide epidemic of influenza which occurred in the fall of 1918 (*A. Y. B.*, 1918, p. 716) has greatly stimulated interest in and study of this disease. As a result of the numerous new observations as to its epidemiology and bacteriology our preconceived ideas with regard to it have been greatly modified. The epidemic character of the disease needs no confirmatory evidence, for it is one of the most typically epidemic contagious diseases, and the progress and spread of an epidemic can be accurately foretold. That it is conveyed from individual to individual by personal contact has long been the accepted theory. But little evidence has been produced that tends to any other conclusion, and it has been thought to be but rarely, if ever, conveyed by fomites, such as clothing, foods, etc. Some evidence of its transmission through improperly cleaned eating utensils has been produced (see *Public Health*, *infra*), but it is probably infrequent. It has been the commonly accepted theory, and one seemingly borne out by clinical experience, that the infection is transmitted chiefly through the catarrhal discharges from the respiratory passages of infected individuals. Simple clinical studies in the late epidemic have seemed to bear out this theory, and in the institutions where the correct masking of attendants, proper isolation of infected persons, and other sanitary regulations have been enforced the epidemic has been thought to have been controlled in its dissemination. It spread with particular virulence in the great military camps and hospitals, but when masking after the method of Capps and other measures designed to prevent transmission by this channel were enforced, the course of the disease was apparently controlled. The sharp contrast in this respect to Army hospitals which failed to carry

out such regulations was striking. There are those who believe, however, that the epidemic is checked only when the susceptible material has been exhausted and that there are no known methods by which we may limit the spread of an epidemic. This theory, although it may apparently apply with regard to very large territories, does not seem to be borne out in relatively limited areas of population where strict quarantine and preventive measures are capable of being enforced. This aspect of the problem was particularly emphasized during the past epidemic on many army transports, in certain schools, in army camps, and even in some civil communities, where direct control seemed to follow the enforcement of proper sanitary measures designed to check the spread of the infection by the respiratory route.

In this connection, however, we must take cognizance of the interesting series of experiments conducted on healthy volunteer sailors by Milton J. Rosenau and his associates (*Jour. Am. Med. Assoc.*, lxxiii, 311). They attempted to transmit the infection to healthy volunteers by the most direct possible transference of the catarrhal discharges of the sick to the healthy mucous membranes of the subjects. Not a single case of infection occurred even when the contact was made very close indeed, or even when the collected and entirely fresh exudate was directly conveyed to the nasal mucosae of the experimental subjects. The same was the result when cultures from known cases were inoculated into the mucous membranes of healthy men. Rosenau mentions similar results of other investigators, but he calls attention to the liability of erroneous conclusions from this study arising from the fact that the men submitting themselves to inoculation may have been naturally immune to the disease, may have had a previous immunizing through unrecognized attack, or that other necessary agents may be concerned in the transmission of the disease which are as yet not recognized.

That predisposing factors exert a very important influence in the spread of influenza, as well as determine to some degree the gravity of the cases,

has been shown by several sanitarians in the military service during the year. Orders requiring proper protection from inclement weather, the issue of suitable shoes and other articles of clothing, and relief of men from exhausting maneuvers during severe weather have been reported by Col. Charles Reynolds, chief surgeon of the Second Army, A. E. F., to have apparently almost immediately checked the spread of the epidemic in the Second Army area in France. It has been shown also that the early isolation of cases or suspected cases limits the spread of the disease, and very early hospitalization of positive or suspected cases, as illustrated by the work of Goddard and Overton at Camp Upton, not only apparently checked the spread of the disease, but also greatly lessened the mortality.

The late epidemic was characterized not only by very wide dissemination, rapid spread, and universal character, but particularly by a high mortality rate. Contrary to the usual experience, this epidemic was not very highly fatal among the aged or yet among the very young, but it seemed particularly to select for its gravest manifestations the young adult. In general the acute infectious diseases seem to pass by pregnant women or these women demonstrate a certain higher degree of resistance to infection, but in this epidemic the infection attacked pregnant women with especial frequency and violence, so that some institutions report a mortality rate among infected pregnant women as high as 80 and 85 per cent.

The epidemic of 1918 differed in its clinical picture but little from the usual picture manifested in influenza. Most of the cases were of the so-called respiratory type, and pneumonia was extremely frequent and was probably present in some degree in practically all fatal cases. In a series of 29,000 cases reported as influenza from the A. E. F. to the central laboratories at Dijon every fatality was ascribed to pneumonia with but two exceptions. No autopsies were reported in these two cases, and judging from the fact that of about 5,000 fatal cases in which autopsy was performed pneumonia was present in all, it is quite certain that it was the almost uni-

versal cause of death in this epidemic. Pneumonia was probably much more frequent in this pandemic than in any previous influenza epidemic, in which meningitis, otitis media, mastoiditis, and septicemia have not infrequently appeared also as probable immediate causes of death.

The very wide diversity of opinion as to the causative agent of influenza among bacteriologists of unquestioned ability (see *Pathology and Bacteriology, supra*) leads to the conclusion that the causative organism still remains to be discovered, particularly since the clinical picture of the late epidemic was practically constant over the entire world. Several investigators claim to have been able to have transmitted the disease through a filterable virus, but Park (*Jour. Am. Med. Assoc.*, lxiii, page 318) summarizes the results of his studies thus: "Our final conclusion is, therefore, that the microorganism causing this epidemic has not yet been identified." He classes the influenza bacillus (*B. influenzae* of Pfeiffer) together with certain streptococci, pneumococci, and other organisms as secondary invaders. This conclusion is in thorough accord with that of Clarke, who has reviewed the cases reported from the A. E. F. to the central laboratory at Dijon.

Two lesions rarely, if ever before, reported in influenza occurred with great frequency in the late epidemic. One found apparently with as great frequency in the United States as among our expeditionary troops was a degeneration in certain voluntary muscles, usually in the lower portion of the rectus abdominis. The lesion is typically a Zenkers degeneration, but it has been frequently reported, particularly by surgeons, as an abscess formation. No satisfactory explanation for its frequency in this epidemic has been advanced. Analysis of the autopsies on influenza-pneumonia cases in the A. E. F. shows that in a very high percentage of cases in which the lesion was sought, infection of the accessory sinuses of the skull had taken place. This occurred in many instances with but few determining clinical symptoms, but study of the problem leads us to conclude that in all probability it is

an almost constant finding and that sinus infection is a very early lesion of the disease. The fact that it may exist without showing any very striking clinical signs is of great importance in the study of carriers of influenza and also in the explanation of the frequent complications of otitis media, mastoiditis, and perhaps meningitis in cases of influenza.

Very little new has been evolved in the treatment of influenza as a result of the late epidemic. This point is well illustrated by a recent careful summary by Alexander Lambert. Numerous suggestions have been made of prophylactic vaccination with various vaccines, which are usually composed of mixed growths of different strains of the influenza bacillus, the various streptococci, the *Diplococcus catarrhalis*, several strains of pneumococci, etc. In general it is now admitted that these organisms are but secondary invaders in the disease; nevertheless, several astute clinicians strongly recommend the use of the prophylactic vaccines. It is quite possible that they may in some way limit or even prevent the onset of the infection, on the analogy of the action of the foreign proteids in the combating of infection. It is quite logical to assume that the secondary complications of influenza may be lessened or modified by the vaccines of these secondary infectors, since their rôle in the complications of the contagion must be at least admitted. There is, however, great question in the minds of many whether vaccination is in any way beneficial. As to the medicinal treatment, nothing new of demonstrated value has been evolved.

A satisfactory summary of our present knowledge of influenza is presented in an editorial in the *Journal of Laboratory and Clinical Medicine* (iv, No. 3), which is here quoted:

(1) Pandemic influenza is an acute infectious disease, of unknown causation, characterized by a marked leucopenia which removes the normal barriers against infection and exposes the body to invasion by whatever pathogenic organisms may gain access to it.

(2) It may cause death without the aid of other viruses, but in the majority of instances its deleterious effects are intensified by the presence and activity of other pathogenic organisms.

(3) In its spread it is not dependent upon the presence or aid of other viruses. It attacks the strong and vigorous as readily as it does the infirm. The mortality caused by it is higher among the strong and vigorous than among the weak and sickly.

(4) The mortality accompanying or following it is largely determined by the presence and virulence of other infectious organisms.

(5) The period of incubation, so far as it can be determined, is two days or less, depending, doubtless, upon the virulence and the amount of virus introduced into the body and the readiness with which the natural resistance of the body is broken down and the degree of defenselessness, indicated by the leucopenia, is established.

(6) The pathogenic organisms which most frequently take advantage of the defenseless state of the body induced by the influenza virus are those which are capable of growing and multiplication in the pulmonary tissue, such as the different types of the pneumococcus, streptococcus, Friedlander's organisms, and possibly some varieties of staphylococcus and the Pfeiffer bacillus.

(7) Punctures made from the lungs during life and during the active stage of the pneumonia may show any of the above mentioned organisms, either in pure culture or in mixed form. The question arises as to how far these organisms may be due to terminal infection.

(8) The pathologic condition found in the lung after death from pneumonia following influenza is determined by the invading organisms.

(9) Influenza is not transmitted through the air for long distances, nor is it due to weather, nor to meteorological conditions. It is transferred from man to man either directly or indirectly; either by direct contact or indirect contact.

Pneumonia.—The high degree of prevalence of pneumonia, especially in the military camps, during the past three years has brought out much new material, and as a result our preconceived ideas as to this disease have been considerably modified or disturbed. It is true that the type of pneumonia most frequently seen in the military camps or during the influenza epidemic has not been a typical lobar pneumonia, but even our picture of this infection has been considerably modified by our extensive experience with it, and we now know that organisms other than the pneumococcus are capable of producing even the pathologically and clinically typical lobar pneumonia. The practically constant occurrence of pneumococci in many cases of bronchopneumonia without the induction of typical lobar lesions is also discon-

certing, and it is quite evident that we must decidedly modify the generally accepted idea that pneumonia is a specific hæmic or general infection to the older conception that it is an "inflammation of the lung" which presumably may be induced by several, or perhaps many, organisms. The distinct division on a biological basis of the pneumococci into three definite pathologic groups and a fourth group composed of various types which are not otherwise classifiable (*A. Y. B.*, 1915, p. 688) is also confusing to those who still persist in the belief that pneumonia is a specific general infection with pulmonary localization. V. C. Vaughan summarizes our knowledge of the bacteriology of pneumonia thus: "So far as the bacteriologic factor is concerned, there are many species of bacteria which may cause pneumonia, and in this sense there are many pneumonias."

Experience during the war has amply substantiated the old idea that factors such as exposure, exhaustion, and the like are very important matters in the predisposition to pneumonia, and clinical study seems to indicate that recognition of these predisposing factors and proper preventative treatment may greatly lower the incidence of pneumonia. Nothing new has been introduced in the treatment of pneumonia that warrants the expectation of real advance beyond the old symptomatic methods and in suitable instances the use of the specific type serum in pneumococcus cases when typing is possible and the early introduction of the treatment is practicable. It has been quite certainly shown, however, that in cases of pneumonia the mixing of the infection by the introduction of new strains of the same infection or of entirely distinct organisms, as the hæmolytic streptococcus in a case of pneumococcus infection, greatly and seriously complicates the original case, and highly favors the development of such complications as relapses, perhaps excited by other organisms, or empyema, pericarditis, and the like.

Sprue.—Sprue is a disease which occurs with considerable frequency in the tropics, and in the minds of many it is limited to this distribution,

though we are beginning to find cases not infrequently in this country, particularly in the larger seaport towns in which people from the tropics are most likely to appear. E. J. Wood (*Jour. Am. Med. Assoc.*, lxxiii, 165) calls attention to the fact that the disease may occur in persons who have lived their entire lifetime in this country, and it is probably much more frequent than is commonly believed. Doubtless many cases are incorrectly diagnosed as pernicious anæmia or other forms of severe anæmia.

Sprue is characterized by an inflamed, ulcerated, and indurated tongue, which may be mistaken for the tongue frequently seen in pellagra except that in the latter condition wholesale desquamation instead of simple ulceration and inflammation occurs. Diarrhea is a very persistent and extremely exhausting sign, particularly as the movements are most frequent at night. The stools are very voluminous and contain large quantities of gas, fat, and waste nitrogenous elements. It is thought that changes in the pancreas may be much concerned in the disease, as indicated by the defective metabolism of the fatty foods, and the loss in nitrogenous and fatty principles is believed to be responsible, in large part at least, for the emaciation, weakness, exhaustion, and the anæmia which develops. This anæmia is very severe, quite as severe as pernicious anæmia, and it is highly probable, as asserted by José Alvarez of New York, that most cases of sprue falling into the hands of physicians unfamiliar with it are so diagnosed. The cause of the disease is as yet undetermined. Some recent work seems to indicate that it may follow from an infection with the colon bacillus. Ashburn from his extensive studies of the disease carried out in Porto Rico believes that he has identified a specific mold organism which is concerned at least in its development.

Amæbic Dysentery.—Although amæbic dysentery has been reported but infrequently either at home in the United States or in our expeditionary forces, the close examination which was possible at the ports of debarkation and particularly in the large

debarkation hospitals shows that many cases of this type of infection really exist. Koefoid of Berkeley reports finding as high as 12.5 per cent. of returned soldiers to show in their stools a virulent type of the amœba commonly known as the *Entameba histolitica*. This frequency of finding is somewhat astonishing in the light of our previous knowledge of this infection, but it seems that, contrary to the usual conception, very long periods of absolute freedom from the symptoms may occur, with but occasional outbreaks of the dysentery, especially when adverse dietetic or other predisposing conditions present themselves. The British are similarly reporting large numbers of infected returned soldiers, especially among those who served in India, Africa, Egypt, and especially in Mesopotamia. As is the case with our men, most cases present such mild and trivial symptoms and signs of the infection that it is not recognized as of any definite importance until by chance the stools are examined by the physician. Labbe (*Bull. de l'Acad. de Med.* April 29, 1919) reports that the infection is very frequent in France and that it is commonly not recognized because of its mild and atypical clinical picture. He states that the infection is found very frequently in both soldiers and civilians who have never been out of France, some of whom have presented no apparent symptoms whatever of the disease.

The great importance of these reports lies in the fact that with the return of our soldiers to civil life, many will doubtless act as carrier disseminators of the disease, perhaps without themselves suffering in the least from it. A rather general dissemination of the infection among the civil population appears to be likely, and it is important that physicians be aware of the probability of these carriers and of the likelihood of the disease appearing in persons who apparently have never been exposed. It is most important from now on in every case of dysentery or persistent "diarrhea" that the stools be examined for the amœba and that corresponding care be exerted in the searching out of carriers.

Scurvy.—Hess and Unger from the New York Department of Health report after a series of experiments that canned tomatoes have a very high antiscorbutic value and that they may be satisfactorily employed to replace orange juice in the dietary of young children. Givens and McClugage from the University of Rochester have also apparently shown that this antiscorbutic value is retained at least to some extent in desiccated tomatoes. The relative cheapness of the article as compared with other antiscorbutics is, of course, one of its principal dietetic virtues.

In this connection it is interesting to note that H. W. Wiltshire (*Lancet*, Dec. 4, 1918) has used germinated beans with excellent results in the prevention of scurvy, following the suggestion of Chick and Hume that such structures are very rich in an antiscorbutic vitamine. It is only after germination is begun that this property appears; it is not present in the dried bean. Chick and Hume further state that freezing and subsequent cooking render meat practically useless as an antiscorbutic. This observation has an important bearing on the frequent occurrence of scurvy in Alaskan camps, even where fresh meat is available in abundance. It is stated also that modern lime juice is not to be trusted as a preventative of scurvy. It must be remembered that the older form of lime juice customarily used in the prevention of scurvy was largely composed of the juice of the lemon; this was in reality the form used in the British Navy on which is based largely the reputation which "lime juice" enjoys as an antiscorbutic.

Encephalitis Lethargica.—Encephalitis lethargica is a disease condition which, though it has probably existed for a long time, has but recently been sufficiently defined to constitute a clinical entity. It is probable that it has been occurring almost constantly in the practice of physicians of wide experience but that its true nature has not been recognized by them. Nearly every hospital man in looking over his past cases is able to find several undiagnosed conditions that doubtless should have been classed under this head. The recently

reported and most carefully studied cases have been chiefly among soldiers. The disease apparently occurred with about equal frequency among the British, French, A. E. F., Italians, and among the American troops at home.

The most striking symptoms relate to the central nervous system. The clinical picture is that of an acute general disease of the infectious type with dominant symptoms of languor, apathy, and a drowsiness which may deepen into a lethargy or coma. Progressive muscular weakness may pass or develop into complete disablement and a combination of cranial nerve palsies, of which ptosis, squint, and nystagmus are characteristic signs. The disease is most readily confused with poliomyelitis, and, indeed, in many respects the two conditions appear to be identical.

The disease has been supposed in some instances to have been caused by food poisoning. There is, however, no sound basis for this supposition. The whole picture of the disease and the pathological anatomy, in so far as it has been determined, indicate an acute specific infection. The chief locations of the pathological lesions determine to a dominant degree the symptomatic picture. In some cases they are mostly in the medulla; in others, in the cerebral cortex; and in still others, apparently much like those of a poliomyelitis, chiefly in the spinal cord.

Symptomatically the disease may never pass beyond a muscular weakness with a certain degree of exhaustion, lethargy, and apathy. Some cases are of very sudden onset with a rapidly deepening coma and death within a few hours. Histologically the brain cells in post-mortem examinations show cytoplasmic degeneration, quite similar to that seen in the ganglion cells in poliomyelitis, and in addition a perivascular infiltration of lymphocytes into the perivascular lymph spaces, the intensity of the lesions varying according to the symptoms of the disease manifested.

The statement is currently made that encephalitis lethargica follows with considerable frequency influenza. This is probably incorrect and based

on wrong diagnosis, due to the fact that in many respects the disease resembles the so-called cerebral type of influenza and also because the symptoms of a general infection are shown in most of the cases. Many patients doubtless recover, some completely and some with various mental or paralytic symptoms of variable duration. These late signs and symptoms when they attack the muscle groups are strikingly like those seen in the convalescent types of poliomyelitis. No successful or encouraging treatment has been discovered. It must in all probability wait on the discovery of the cause of the disease or a more complete understanding of its pathology. (See also *Pathology and Bacteriology, supra.*)

Tobacco Smoking in the Army.—It is generally recognized that smoking was a pleasure abused to a considerable degree by most soldiers in the war. In our Army the supply of tobacco was usually more than abundant, and most soldiers freely confess that they used it to a detrimental extent. This admission is by no means to be construed into a statement that the use of tobacco is in itself detrimental any more than the abuse of a meat article of diet, also known to be detrimental, is to be used as an argument that meat is *per se* a poison and an undesirable food. There can be no question that the use of tobacco by the military forces contributed in no inconsiderable degree to the comfort, pleasure, and general wellbeing of the average soldier in the war.

It was found, of course, that in certain conditions, notably in the neuroses of the heart such as irritable

heart (*A. Y. B.*, 1918, p. 709), the use of tobacco was contra-indicated. The same is true also of the use of tobacco by men suffering from the various catarrhal diseases of the respiratory tract, and especially by those who had been gassed. So universally was this last fact recognized by the soldier that he would usually voluntarily discontinue the use of tobacco while suffering from the effects of gas. It was frequently resorted to in the differential diagnosis of imaginary from true gassing; the really gassed soldier no longer desired his ration of tobacco, whereas he who was not truly so affected found that his taste for tobacco continued.

A very interesting study of the relation of tobacco smoking to tuberculosis is presented by A. K. Krause (*Bull. John Hopkins Hosp.*, May, 1918). His studies appear to have been stimulated by those of Major Webb, who found that though smoking caused the appearance of certain evidences of bronchial irritation in those who used tobacco, no effect was produced that tended to activate or intensify tuberculosis of the lungs, and that the smoker's acquaintance with the tubercle bacillus is just as favorable and just as well guarded as that of his non-smoking comrade. Krause evidently believes that, everything else being equal, the net effect of smoking would be mildly stimulating and tending toward the repair of the tubercular lesion. This study, however, it is but fair to state, takes into consideration only the irritating effects of smoking and does not consider the more general effects which must be studied if the subject as a whole is to be covered.

SURGERY

M. G. SEELIG

Surgery and the War.—The task of selecting salient topics in the surgical progress of the year awakens the thought that the influence of the war must have exercised a highly stimulating effect on advance in surgery. This conclusion is true to a strikingly limited degree. It is very questionable whether the war experience resulted in the establishment of a single epochal surgical principle.

This is not tantamount to saying that surgery did not profit measurably as a result of participation in the welter of misery and slaughter. The profit, however, may be characterized as a quantitative, rather than a qualitative, experience. The very large number of wounds of viscera, soft parts, and bones furnished unusual opportunities for studying infection, hemorrhage, and such problems as

traction and fixation in fractures. Joint injuries in superabundance established the fact that joint synovia are more tolerant of infection than they were previously believed to be. The large number of intracarnial injuries resulted likewise in crediting the brain and its envelopes with a dependable amount of resistance to infection. All in all, however, we may not assert that from any of these experiences there developed a new surgical principle. It should be clearly borne in mind that although the method of wound excision introduced by the French in the late war did much to revolutionize the treatment of war wounds, that although the admirable studies of Dakin and Carrel put the problem of wound disinfection on a firm basis, nevertheless both of these advances must be regarded as forward steps in practice rather than as the establishment of new surgical principles. Tinker of America had recommended wound excision a decade ago, and the chlorine group of antiseptics had been studied long before the war.

In the space here afforded it seems wise to limit our review of the surgical progress of the year to two topics, shock and surgical diseases of the chest. The progress made in the study of shock should be noted, not because the problem has been markedly clarified, but because the study devoted to it has emphasized most admirably the rôle of coördinated and coöperative surgical research. On the other hand, surgical diseases of the chest should be reviewed for the reason that in this field real progress has been made, almost up to the point of establishing new surgical principles.

Shock.—At the outbreak of the war the problem of shock, in spite of years of intense individual study, was in a decidedly unsettled state (*A. Y. B.*, 1918, pp. 697-701). There seemed to be an unconquerable desire to make some one organ or group of organs responsible for the symptom complex. In pre-war times most of the investigative work was carried on by clinicians, and although strongly combated in various quarters, the majority of surgeons believed that low blood pressure was the primary cause of shock. With the entry of

the United States into the war there came into being a shock commission, made up for the most part of physiologists, for the study of traumatic shock. In August, 1917, the British Medical Research Committee created this special commission, composed of British and American investigators, and it attacked the problem by the investigation of such fundamental factors as blood constituents, blood pressure, blood distribution, chilling effects, anæsthesia, hemorrhage, and the various other factors that enter into the shock problem.

It may be said at this point that low blood pressure was found not to be the primary cause of shock; it served, of course, as an excellent measure of the general condition of the patient, but in itself it could not be reckoned either as a measure of the degree of shock or as a definite contra-indication to operation. Early in these studies two other hypotheses were hopefully propounded, one to the effect that shock was the expression of an acidosis, and could often be combated successfully by the administration of sodium bicarbonate intravenously; the other theory was that the condition was due to multiple fat emboli which gained entry into the circulation after lacerating wounds of fatty tissues, such as subcutaneous tissue or bone marrow. Neither of these hypotheses has been borne out by time and clinical experience.

Early in the war W. M. Bayliss set himself to devise a method of preventing exosmosis. The escape of the fluid constituent of the blood from the blood vessels has always been a grave and irremediable factor in shock. Bayliss attempted to combat this exosmosis by adding a colloid to the blood stream. He recommended a five per cent. gum-acacia solution, to which sodium bicarbonate was added to make an isotonic bicarbonate solution. There were many conflicting reports regarding the efficacy of this solution, and it is thus very difficult to estimate its clinical value. There was more than a suspicion that in certain instances the solution proved to be harmful. At all events the gum salt solution came far from proving itself a panacea. The introduction of a colloid into the blood certainly rests

on a rational basis, and its use seems to have been more satisfactorily solved by Erlanger of St. Louis, a member of the American Shock Commission, who recommended a hypertonic solution of gum acacia (25 per cent.) and glucose (18 per cent.). The acacia serves as the colloid, and the glucose serves to heighten the osmotic power of the blood, so as to induce an endosmosis in order to counteract the exosmosis. Erlanger's clinical results are excellent, and his experimental data are strong and logically interpreted. (See also *Physiology and Pharmacology and Medicine, supra.*)

In summary it may be said that although the work of the various military commissions has not led us to anything approximating a definitely accepted theory of shock, it has resulted in emphasizing the significance of many data that heretofore have been too little appreciated, such facts, for example, as the tremendous importance of cold, exposure, and pain, the depressant effect of ether as compared with nitrous oxide, and, finally, the great significance of the problem of blood distribution as the fundamental problem in the chapter of shock. In the pre-war days many careful clinicians were always loath to combat a condition of shock with any other measures than warmth, posture, and careful morphinization. A seriously shocked patient was considered to be in a state of unstable equilibrium, demanding the utmost care in order not to do harm by well intentioned therapy. Caution and conservative clinical judgment both demand that we continue to maintain this same attitude. There seems to be room for little or no doubt that the glucose-acacia solution has proved itself of great value in certain cases in which Erlanger has used it; there seems to be equally small room for doubt that blood transfusion is also an excellent form of therapy; and yet there is no way of determining which cases of shock will recover on the policy of conserving the patient's vital forces by the simple means of warmth and absolute rest, nor can we determine whether these very patients may not be harmed by intravenous therapy of any kind. We are, in other

words, still obliged to view shock as the elder Gross viewed it, namely, as a "rude unhinging of the machinery of life," and so viewing it, we must exercise consummate care lest we further provoke the process of unhinging.

Surgery of the Chest.—The war experience in relation to surgery of the chest bore more practical fruit than it did in the field of shock. Indeed, it is doubtful whether one would not be justified in saying that lung surgery was revolutionized as a result of the war experience. The following conclusions adopted by the Second and Third Inter-Allied Surgical Conferences outline various topics of importance in the development of lung surgery:

SECOND CONFERENCE

(1) Wounds penetrating the chest result in a mortality estimated at 20 per cent. in the sanitary formations of the army zone.

(2) Early death is the rule because of asphyxiation and hemorrhage. Shock plays a large part in the early or immediate death.

(3) Late mortality usually results from pleuropulmonary infection.

(4) Pathological anatomy established that the pulmonary lesions are the same as those of all war wounds. The mechanical disturbances are the same, the infection is the same, except that pulmonary tissue resists infection better than other tissues, but the infection of the pleura, either by the external air or by the pulmonary wound, may seriously complicate the case.

(5) Two points in the treatment are of utmost importance: immediate attention, and complete immobilization of the patient.

When the patient is suffering from shock, general treatment for shock should be undertaken, and the patient should be given a reclining posture with the head lowered.

Medical treatment is sufficient for the healing of many chest wounds which present no complication.

Surgical treatment should be employed for parietal lesions and for immediate or late complications. In all cases complete surgical treatment of thoracic lesions (wounds of the soft parts, fractures of the ribs, etc.) is absolutely necessary, as in all war wounds.

A. IMMEDIATE COMPLICATIONS:

(a) *Opening of the Thorax.*—Closing is necessary either by plugging or by direct suture of the wall.

(b) *Hemorrhage.*—With open thorax: direct hemostasis of the lung either by plugging or by hemostatic suture. With closed thorax: if it is certain that shock is not the primary cause, and if the blood

pressure drops in spite of treatment, and if there are symptoms due only to hemorrhage, the ideal operation is thoracotomy with direct hemostasis of the lung. Indication for operation in cases of closed thorax is very rare. Such treatment requires competence and equipment of the highest order.

(c) *Hemothorax*.—If hemothorax is discovered, puncture to relieve mechanical compression is permissible. It is well during or after the drawing of the blood to inject air or oxygen into the pleura, in order to prevent collapse of the lung. Febrile hemothorax calls for exploration by repeated punctures for the bacteriological examination of the liquid.

B. LATE COMPLICATIONS:

(a) *Persistent Aseptic Hemothorax*.—This variety of hemothorax should be treated by repeated puncture for evacuation, to allow of pulmonary expansion. The introduction of a certain amount of oxygen into the pleura during or after these punctures is often useful.

(b) *Infected Hemothorax*.—When infection of the pleural fluid has been established by bacteriological examinations, thoracotomy is definitely indicated.

(c) *Purulent Pleurisy*.—This may be treated in the same way as infected hemothorax. When drainage is deemed necessary, it should always be effected at the lowest point (the posterior base of the thorax).

(6) Treatment of pleural suppuration by the method of progressive sterilization.

In recent or old cases of pleural suppuration there may be practised progressive sterilization and secondary suture of the thoracic wall. There is no reason to fear a suture of the thoracic wall over an empty cavity. It is the best treatment to obtain rapid expansion of the lung and the disappearance of the pleural cavity. (Dépage.)

7. In urgent cases it is well to proceed at once to the extraction of intrapulmonary projectiles when conditions are favorable.

8. Whatever the circumstances, prophylactic therapeutics of the pleuropulmonary infection by means of direct surgical treatment of the lung wound (extraction of all foreign bodies, suture of the wound with or without excision) seems the logical procedure. This question deserves careful investigation.

9. Blood effusion in the pericardium is governed by the same therapeutic principles as hemothorax.

THIRD CONFERENCE

Surgical treatment of chest wounds tends clearly toward active surgery:

(a) In case of dangerous hemorrhage, an open thorax is always operated.

(b) Primary extraction of intrapulmonary projectiles is more frequently practised.

Treatment of the parietal wound con-

sists in excision and removal of all foreign matter, whether bone or metal, lodged in the lung, cleansing of the wound, and immediate primary closing of the thorax. Good results thus obtained clearly justify this method of surgery.

(c) Infected hemothorax is treated by very early drainage and progressive disinfection and secondary closing of the thorax.

(d) Chronic purulent pleurisy is amenable to progressive sterilization, accompanied, if necessary, by the opening of the pleuropulmonary casing by several incisions.

These conclusions do not emphasize adequately how markedly war surgery of the lung differed from the surgery that had been practised in civil life. In order to emphasize this we shall quote verbatim from the abstract made by Muller (in *Progressive Medicine*) of the article by Lockwood and Nixon in the *British Medical Journal* of 1918 (p. 105).

The surgical measures which these cases appear to justify should not be attempted unless:

(a) Active resuscitation can be carried out immediately after admission of patient.

(b) The services of an expert radiographer are at all times available.

(c) The physical signs can be carefully studied and judiciously interpreted.

(d) The most perfect asepsis can be secured at the operation.

Given these conditions, we are guided by the following general rules for operation:

(1) Operate as soon as the patient's condition allows. (This is much earlier with local than with general anesthesia.)

(2) Operate at a place where early evacuation will not be necessary.

(3) Operate in all cases where injury of the diaphragm is suspected.

(4) Operate on all cases with open pneumothorax (traumatopneæa).

(5) Operate on all badly stove-in chests, where the pleura is lacerated, even though there is no external wound.

(6) Operate on all cases where a large missile has traversed the pleural cavity, whether lodged in: (a) the chest wall; (b) the pleural cavity; (c) the lung; (d) the mediastinum; or (e) the pericardium.

(7) Operate on all very acutely infected cases, even although the missile is not retained.

In no other branch of war surgery is the technic of the operation more exacting, although the manipulations themselves do not require any exceptional dexterity.

For operation the patient should be maintained with the injured side dependent. In the majority of cases the half-sitting posture is the most comfortable.

Gas and oxygen should be available to be administered while the hand is inside the chest or if the patient is restless; in

the latter event a light nitrous oxide analgesia only is maintained.

The most serious chest cases can be operated upon with this type of anesthesia, cases which would never be fit for general anesthetic, such as either or chloroform. A more extensive, deliberate, and protracted operation can be undertaken with the minimum of shock to the patient under local anesthesia combined with gas and oxygen.

Never should either or chloroform be used in chest surgery. The manipulative technic of chest surgery is extremely simple, but the utmost speed is essential. There is no doubt that unless primary union is obtained the patient's condition is made grievously worse by operation. Primary union will not result without bold and thorough excision of the wound area. After the track of the missile through the chest wall has been excised, the gloves of the operator are changed, the instruments used are discarded, the skin is again thoroughly cleansed with picric acid, and fresh towels are used. Rubber dam, if available, or towels are draped about the incision, in such a way as to expose no skin and the minimum of muscle, and fixed with clips.

When the position of the wound will permit, resection of the fourth rib from the midclavicular to the posterior axillary line furnishes the easiest access to the thoracic cavity. Resection of the rib must be wide enough to allow careful inspection of the cavity. It is important, however, not to exert too powerful retraction on the chest wall, as the tendency to shock is thereby increased and the mediastinum unduly disturbed.

Immediately after opening the chest, rapidly mop out the thoracic cavity with gauze wrung out of hot saline carried on a long curved forceps of the Ochsner pattern. Unless there is fresh hemorrhage within the chest which, of course, must always be attended to first, lacerations of the diaphragm must be first dealt with. Where access to the abdominal cavity through the chest is necessary, the diaphragm may be freely incised without hesitation.

No wound of the diaphragm should be left unrepaired whether on the right or left side. Particularly when the missile has tracked through the diaphragm and lodged in the liver, the track through the diaphragm must be excised and the diaphragm incised widely enough to expose completely the track in the liver, and the missile removed. The track in the liver should be thoroughly cleansed out with a Volkmann's spoon, followed by swabs wrung dry out of saline and ether.

After repair of the diaphragm, the lung, held with the Collin forceps, should be brought up to the opening in the chest (pneumopexy prolongs the operation and is never necessary), remove the missile or fragment of rib (if lodged in the lung), excise, thoroughly clean and suture the track or lacerations with mattress sutures of catgut, which should not be so tightly tied as to tear out on expansion. For repair of lung tissue a blunt round-bodied needle is used.

Partial lobectomy may be necessary,

depending on the degree of laceration of the lung. Total lobectomy and, in one case, excision of both middle and lower lobes of the right lung has been necessary for acute malignant gas gangrene, but has not saved the patient's life. We have been struck by the rarity of finding an open bronchus at operation. For such a condition crushing and ligaturing with catgut is sufficient. It is essential that the visceral surface of the lung should in all cases be approximated, thus mechanically retarding effusion from damaged lung, and lessening the tendency for infective condition to light up in the lung substance itself. Hemorrhage from the lung need not be feared.

All blood clot, pieces of cloth, fragments of bone, etc., must be carefully hunted for and removed from the thoracic cavity. The toilet of the pleura can better be performed by sponging (as in the case of the peritoneum) than by washing out. The last step before closing off the pleural cavity is to sweep round the chest wall, lung, mediastinum, and diaphragm systematically with swabs wrung dry out of hot saline, and finally, with a swab wrung dry out of warmed ether.

The chest should always be closed, unless there is extensive gas gangrene of the lung tissue itself adherent to the chest wall.

Time should not be wasted in attempting to repair the parietal pleura in extensive wounds, as it can rarely be done; such pleura as remains can be caught up with the muscle sutures.

The chest must be hermetically closed with the first layer of muscles, otherwise pocketing will occur, pleural effusion accumulate, the incision break down, and the operation fail. From the time the pleura is opened until it is closed, when the hands of the operator are not actually in the chest, the hole in the pleura should be covered by thick lint wrung dry out of hot saline. This closure is important, even if only for a moment at a time.

Careful approximation of the skin edges is necessary to ensure early and absolute primary union.

Even this description, striking as it is, does not compare with many of the French descriptions or with Moynihan's exposition, recommending the opening of the chest and the subsequent complete delivery of the lung, swinging it freely about on its pedicle while it is being carefully inspected and repaired before returning it to its thoracic cage. One readily grasps the fact that no longer is the lung and its pleural cavity a *noli me tangere*.

Empyema.—No discussion of the surgery of the chest would be complete without a reference to empyema. This disease was so frequent a complication of the acute respiratory diseases as well as of the various chest

and lung injuries during the war that it came in for particularly thorough study and observation. As one reads the various reports issued during the war and the equally numerous reports and papers published since the armistice, one gains the impression that there exists a marked amount of conflict and uncertainty. This is not the time or the place to analyze these data in order to bring them into harmony. It is true, however, that the conflict is apparent rather than real. As a result of our military experience with empyema, the following surgical experiences may be regarded as fairly definitely established:

(1) Operation, other than simple aspiration, should never be performed while the patient is toxic and markedly com-

promised during the early days of pneumonia.

(2) Costectomy and intercostal incision seem to have an equal number of advocates.

(3) Pneumococcus infections tend to complete and fairly early recovery after any method of instituting satisfactory and free drainage.

(4) Streptococcus infections require more than this. In these infections the dense fibrin layer tends to fix the lung in its collapsed or partially collapsed position. An early use of the Dakin's solution dissolves the fibrin and allows lung expansion.

(5) The problem of maintaining intrapleural negative pressure is a relatively insignificant one.

(6) Radical operations such as the Estlander, Delorme, or Schede, or thorough decortication should not be necessary, if cases can be promptly treated from the outset of the disease. If such operations should be decided upon, it should only be after 12 to 18 months of conservative treatment has been tried out.

PUBLIC HEALTH AND HYGIENE

C. E. TURNER

Infectious Diseases in the War.—There is no better index to the progress of preventive medicine and sanitation than a comparison of the infectious-disease records of the Great War with those of our former wars. An excellent statement of these facts was presented by Alexander Lambert in his presidential address at the meeting of the American Medical Association in 1919 and printed in the *Journal* of the Association. In the Civil War the death rate of killed and died of wounds is given as 33 per thousand and the disease death rate as 65. In the Spanish-American War the death rate from battle was five, and that from disease, 30.4 per thousand. In the Great War up to March 28, 1919, the death rate in our Army from wounds received in action was 14.191, and the death rate from disease, 14.797 per thousand. These figures include the men both at home and abroad. In the A. E. F., with an average strength of 975,716, the death rate from wounds received in action was 31.256, and that from disease, 11.233 per thousand. Of the disease deaths 9.146 per thousand were attributed to pneumonia.

Studying the disease deaths comparatively, we find that malaria caused six per cent. of the deaths in the Civil War and 10 per cent. of the deaths in the Spanish War; in the

late war the deaths from malaria were so few as not to be given in detail but to be classed under "other diseases." Typhoid fever with typhomalaria caused 22.4 per cent. of the deaths in the Civil War and in the fighting period of the Spanish War 60.5 per cent. of all deaths; in the late war this disease caused only 0.4 per cent. of the deaths. On the other hand, pneumonia caused 13 per cent. of the deaths during the four years of the Civil War, three per cent. in five months of the Spanish War, and 85 per cent. of all deaths from disease in the American Army during the late war. Meningitis caused two per cent. of the deaths in the Civil and Spanish Wars, but four per cent. of the deaths in the Great War. Smallpox caused four per cent. of the deaths in the Civil War but only one death in the Spanish War and six deaths in the late war; these deaths were among men who had not been protected by vaccination. Dysentery caused 28 per cent. of the deaths in the Civil War, about 30 per cent. of the 5,600,000 cases of disease reported during that war, and 5.6 per cent. of the deaths in the Spanish War; in the late war it caused 0.08 per cent. of the deaths (there were 41 deaths out of 48,000 cases). Yellow fever was absent during the late war, whereas in the Civil War there were

1,300 cases and in the Spanish War 1,100 cases.

It will be seen that all communicable diseases except those of the respiratory tract have been placed under nearly complete control; subtracting the death rate caused by pneumonia from the total death rate from disease in the Great War, we have 2.2 per thousand as the disease death rate for the entire army on both sides of the Atlantic, as compared with 65 per thousand in the Civil War. From a consideration of these figures and a study of the disqualifications under draft examination, Dr. Lambert urged action by the American Medical Association to secure adequate representation of the Medical Corps on the General Staff of the Army and to secure the establishment of a Federal Department of Health. (See also *Medicine, supra.*)

Epidemic Influenza.—We now have an accumulation of facts concerning the nation-wide epidemic of influenza which began at Boston early in September, 1918, spread over the Atlantic seaboard during the next two weeks, and only a little later reached the western part of the country (*A. Y. B.*, 1918, pp. 706, 716). W. H. Frost (*Public Health Reports*, xxxiv, No. 33) summarizes many of the facts that have been brought to light. Incomplete statistics show that from September, 1918, to the following March there were no less than 450,000 deaths in the civilian population of the country directly attributable to the epidemic. This was a death rate of more than four per thousand. When all military and civilian data have been compiled, there will doubtless be a half-million deaths attributable to influenza and its complications among the people of the United States in the year beginning Sept. 1, 1918.

Classifying the 45 cities of the Weekly Health Index into three broad geographical groups, the Census Bureau found a variation in the mortality rate (*Weekly Health Index*, March 1, 1919). In the cities east of the Appalachians the mortality from pneumonia and influenza from Sept. 14, 1918, to March 1, 1919, was approximately 5.6 per thousand; in cities between the Rocky Mountains

and the Appalachians, 4.35 per thousand; and in cities of the Pacific Coast, 5.55 per thousand. There were, however, wide differences between individual cities.

To gather further statistics house-to-house surveys were made by the Public Health Service in the following population groups: New London, Conn., 7,993; Baltimore, Md., 33,361; certain smaller towns and rural districts in Maryland, 12,669; Spartanburg, S. C., 5,257; Louisville, Ky., 12,602; Little Rock, Ark., 9,920; San Antonio, Tex., 12,534; San Francisco, Cal., 18,682. During the first wave of the epidemic the percentage of the population attacked in these districts varied from 15 per cent. in Louisville to 53.3 in San Antonio, Tex., the aggregate for the whole group being about 28 per cent. The attack rate shown here is similar to that of the 1889 to 1890 epidemic. The case incidence was highest in children from five to 14 years old and progressively lower in each higher age group. The ratio of pneumonia cases to total population varied from 5.3 per thousand in Spartanburg, S. C., to 24.6 per thousand in the smaller towns of Maryland. The pneumonia rate showed little correlation with the influenza attack rate. The ratio of deaths to population varied from 1.9 per 1,000 in Spartanburg to 6.8 in Maryland. The death rate was by no means parallel to the influenza attack rate but was closely correlated with the pneumonia attack rate. The fatality from pneumonia was uniformly about 30 per cent., except in San Antonio, where it was only 18.5 per cent. The death rate was notably higher in children under one year old, in adults from 20 to 40, and in persons over 60; higher in males than in females; and higher in whites than in the colored. The case fatality was highest in the age groups above mentioned.

Many investigators believe a considerable but not absolute immunity is conferred by an attack of the disease. In Baltimore the first canvass was made prior to Dec. 11, 1918, and a second canvass was made in January. Among 32,600 people 724 cases were found to have occurred between the two surveys. On an investigation of cases the clinical diagnosis of in-

fluenza in two attacks was confirmed in only 26 cases, or 0.37 per cent. of the total, and even in these cases the diagnosis was necessarily uncertain. It has been pointed out that at least local recurrences of influenza may be expected, but the character of the epidemic of 1918 furnishes some hope that the recurrences may be less severe than those between 1889-92.

An important investigation by Lynch and Cumming (*Am. Jour. Pub. Health*, Jan., 1919) indicates clearly that influenza may be spread by the contamination of eating utensils that are not properly boiled in washing. The investigators compared two groups of troops living under comparable conditions, except that in the first group the mess kits were collected and properly washed in boiling water whereas in the second group there was individual mess-kit washing in water which was necessarily below the boiling point. These two groups were about equal in number. In the group having collective table-ware washing there were 33,452 men, among whom occurred 1,710 cases, or a period rate of 51.1 cases per thousand for the 14 days under consideration. Among the second group, consisting of 32,624 men where there was individual mess-kit washing, there were 8,208 cases, or a period rate of 252. It was believed that a source for 80 per cent. of the infections among these 66,000 troops lay in unsanitary messing arrangements. Subsequent studies of 18,000 hotel and restaurant employees showed that there were 85 per cent. more cases among those who ate from hand-washed dishes not disinfected with boiling water. This is clearly a suggestion for sanitary dish washing, immersion in boiling water, in the home as well as in public eating places.

In discussing administrative control of influenza at the New Orleans meeting of the American Public Health Association on Oct. 28, Allen Freeman stressed the need of further investigation of the nature of influenza, showing that although there is every reason to believe that the disease is caused by a virus lodging in the nose and mouth and spread from secretions of the nose and mouth indirectly or through droplet infection,

these beliefs are not proved by experiment. Freeman holds that prompt isolation is important and that educational measures are most helpful. The prohibition of public gatherings and the use of masks are not to be regarded as important means of prevention. Until we can be certain that we know the virus of the disease, vaccination is not sound practice. The provision of adequate medical and nursing service and the proper care of pneumonia cases are important in reducing mortality. (*Am. Jour. Pub. Health*, Dec. 1919.) (See also *Pathology and Bacteriology*, and *Medicine*, *supra*.)

Venereal Diseases.—That venereal-disease control is mainly a civil and not a military problem is shown by Major W. A. Sawyer (*Am. Jour. Pub. Health*, May, 1919), who analyzes the data of special reports rendered from Camps Upton, Dix, Meade, Lee, and Pike for a period of 24 weeks from March 29 to Nov. 15, 1918. Taking these five camps together the annual venereal-disease rate for the period was 347.88 per thousand men. The rate for cases contracted in civil life and recorded as of the date when first discovered was 336.96, whereas the rate for cases contracted after enlistment was only 10.92. Less than one-thirtieth of the 45,022 cases in these camps were contracted after enlistment. Major Sawyer believes that for all the troops in this country, including the organizations that were longer in the service than the newly drafted men mentioned above, five to one is a close estimate of the ratio between the cases contracted before and after enlistment.

In spite of prompt isolation, thorough and proper medical treatment, the compulsory use of prophylactic stations, the elimination of prostitution so far as possible in the region of camps, and a thorough educational programme. (*A. Y. B.*, 1918, pp. 435, 718), there was a loss to the Army through venereal diseases representing 2,295,000 days of service between April, 1917, and September, 1918 (*Public Health Reports*, Oct. 24, 1919). Even lacking specific records, however, we may be certain that this was a relatively slight loss compared with previous great wars.

An idea of the treatment facilities furnished by the U. S. Public Health Service and the state boards of health may be obtained from the following summary of the July report (*ibid.*, Sept. 5, 1919). During that month 131 clinics were operated and 5,624 new cases of venereal diseases were admitted, making a total of 16,871 under treatment. A total of 61,578 treatments were administered to patients, and 10,952 of these individual treatments were the administration of arsphenamine. There were discharged as cured 314 cases; as non-infectious but not cured 244; as probably cured, 893. Aided by the Chamberlain-Kahn Act (A. Y. B., 1918, pp. 436, 719), which provided an allotment of \$1,000,000 to the state boards of health each year for the two fiscal years beginning July 1, 1918, together with other appropriations for activities within the service, the Public Health Service has continued its campaign against venereal diseases by assisting in securing prompt reporting, carrying out repressive measures, establishing free clinics for treatment and carrying on a general educational campaign. Nearly all of the state departments of health have established divisions of venereal disease in accordance with the conditions specified in the Chamberlain-Kahn Act (C. C. Pierce, *Public Health Reports*, xxxiv, No. 20). Approximately 61,000, or nearly 50 per cent., of the physicians in the United States and 28,000, or nearly 60 per cent., of the druggists have signed and returned agreement cards to the Public Health Service pledging themselves to coöperate in this programme, and in addition more than 99 per cent. of all newspapers and periodicals have pledged themselves not to carry advertising for quack remedies (*ibid.*, No. 43). The coöperation of the dental profession is now being solicited. (See also XIV, *Social Hygiene*.)

Typhoid Fever in the Vaccinated.—Major Soper, in an address at the annual meeting of the American Public Health Association at New Orleans on Oct. 29, commented upon typhoid fever among troops which had been given a prophylactic vaccination. From June 1, 1917, to July 1, 1918, there were very few cases, the major-

ity of infections appearing after the latter date. The disease appeared in the form of small epidemics; for example, a group of 15 cases appeared among engineers who had been infected by a cook. The figures from the Surgeon-General's office for 108 weeks in the home army with an average number of 967,591 troops show a record of 466 cases of typhoid and 54 deaths. Many of these cases occurred before typhoid vaccination was complete. The figures for the A. E. F. for 101 weeks with an average number of 858,228 troops show, 1,529 cases with 169 deaths. There were 303 cases of para-typhoid fever. Two types of vaccine were used, saline and lipo. Soper concludes that protection from typhoid fever by vaccination, although great, is not complete; that it depends upon the dose of vaccine administered as well as the periods of time between the inoculations; and that, although in such a large group of men it may have been possible that some mistakes prevented a few men from receiving complete treatment, we must concede that massive infection may overpower an acquired immunity and that we must not accept vaccination as a substitute for sanitation. Care in administering vaccine is essential. (See also *Medicine*, *supra*.)

Pneumococcus Vaccine.—Major L. R. Cecil (*Am. Jour. Pub. Health*, Aug., 1919) describes experiments at Camp Upton where approximately half the men were vaccinated with a preparation of saline vaccine containing types I, II, and III pneumococci in about equal parts. Here 12,519 men were vaccinated, most of the men receiving three or four inoculations at intervals of five to seven days. The results were highly satisfactory. During the 10 weeks following vaccination no case of pneumonia of the three fixed types occurred among the men who had been vaccinated. In a control of approximately 20,000 men there were 26 cases of pneumonia of types I, II, and III. During this time the pneumonia death rate for vaccinated troops was only 0.83 per thousand, whereas for unvaccinated troops it was 12.8. Similar experiments were later carried out at Camp Wheeler in Georgia, using a

lipovaccine of the three known types of pneumococci; 13,460 men, or 80 per cent. of the entire strength of the camp, were vaccinated. Excluding cases of pneumonia which developed within a week after vaccination, there were only eight cases of pneumonia among the vaccinated troops during the three months following vaccination, and these were all secondary to severe types of influenza. During the same period there were 42 cases of these types among 3,400 unvaccinated troops. Recognizing the difficulties of giving pneumococcus vaccine, the author nevertheless believes that it is indicated in certain instances, namely, in military organizations where men are suddenly brought from the comforts of home to the hardships of camp life; in large institutions such as asylums and orphanages; among men exposed to cold and wet, like firemen and policemen; in cases of epidemics of pneumonia and among people who are very susceptible to pneumonia and suffer from repeated attacks. It is suggested that the classes last mentioned be vaccinated perhaps once a year with a polyvalent vaccine.

Physical Fitness and a Programme for Health.—Surgeon-General Blue of the Public Health Service (*Am. Jour. Pub. Health*, Sept., 1919) quotes the percentage of causes for which the 30 per cent. of men found unfit for military service were rejected under the draft law. The causes of rejection follow, with the percentage of total rejections attributed to each:

	Per cent.
Alcohol and drugs	0.43
Bones and joints	12.35
Development defects (height, weight, chest measurements, muscles)	8.37
Digestive system	0.53
Ears	4.38
Eyes	10.65
Flatfoot (pathological)	3.87
Genito-urinary (venereal)	1.33
Genito-urinary (non-venereal)	1.35
Heart and blood vessels	13.07
Hernia	6.04
Mental deficiency	5.24
Nervous and mental disorders	5.07
Respiratory (tuberculosis)	8.67
Respiratory (non-tuberculosis)	1.67
Skin	2.68
Teeth	3.16
Thyroid	1.76
Tuberculosis (of parts other than respiratory)	0.88
All other defects	3.06
Cause not given	5.44

On this basis Dr. Blue lists the activities of the Public Health Service to meet the after-war needs in the following order: (1) public-health education; (2) safeguarding the health of infants and children; (3) the establishing of standards for the control of communicable diseases; (4 and 5) sanitary surveys to stimulate improvement of proper waste disposal and the purification of drinking water; (6) improving the milk supply by pasteurization; (7) studies in industrial hygiene; (8) demonstrations in rural hygiene; (9) malaria control; (10) assisting the state to secure better morbidity statistics; (11) coöperation in venereal-disease control; (12) special activities to combat tuberculosis; (13) railway sanitation; (14) the training of health officers.

The Children's Year Campaign.—

During the second year of the war, beginning April 6, 1918, an extensive campaign for infant and child welfare was undertaken by the Children's Bureau coöperating with existing local public-health agencies. Anna E. Rude of the Children's Bureau describes (*Am. Jour. Pub. Health*, May, 1919) the three distinct drives inaugurated in the effort to save 100,000 child lives during the second year of the war. These included a "back-to-school" drive to secure the return of children who had been absent from school during the war, a "recreational drive" to increase the physical vigor of children by proper exercise during the summer vacation, and a drive for the nation-wide weighing and measuring of infants. This last was carried out through the vast machinery of the 17,000 committees of the Women's Committee of the Council of National Defense, and during this campaign more than 6,500,000 weighing and measuring cards for children under six years of age were sent out. Other activities were undertaken, such as the establishment of child-welfare centers and dental clinics and the employment of public-health nurses. During this period six states established divisions or bureaus of child hygiene under the state departments of health, making a total of 11 states now having such divisions. (See also XIV, *Child Welfare*.)

Occupational Diseases Under Workmen's-Compensation Laws.—Legislation placing occupational diseases in the same class with accidents under workmen's-compensation laws is being urged. Those who advocate it take the stand that physical impairment produced by slow development of a disease that has its origin in the processes of an industrial occupation is no less an injury than the disability caused by "accident." Carl Hookstadt (*Mod. Med.*, Aug., 1919) gives the present status of compensation for industrial diseases. In Great Britain and most of her colonies, especially the provinces of Canada, certain enumerated occupational diseases are compensable under the compensation acts. In most of the other foreign countries industrial diseases are not compensable under the accident-insurance laws but are cared for through sickness- and invalidity-insurance systems. In the United States, with six noteworthy exceptions, occupational diseases are not only excluded from the operation of the various compensation acts, but because of the absence of health- and invalidity-insurance laws, receive no consideration whatever. There are 44 workmen's-compensation jurisdictions in the United States. Compensation for occupational diseases is provided in only six of these, namely, California, Connecticut, Hawaii, Massachusetts, Wisconsin, and the Federal Government. In Massachusetts and the United States this inclusion has been effected through the rulings of commission and courts, whereas in the other jurisdictions it has been brought about by statute.

Unofficial Health Organizations.—Through the activities of the Rockefeller Foundation and the American Public Health Association progress has been made in unifying and coördinating national health societies, and a National Health Council has been organized, headed by the president of the American Public Health Association. This Council will endeavor to coördinate the activities of the various health societies, nearly all of which have a representative on the Council. The American Public Health Association is rapidly extending its sphere of activities by an ar-

range providing for the affiliation of state health societies. The association, which was originally largely restricted to the public-health profession, including the administrators of municipal, state, and Federal organizations, is extending its membership to such members of the laity as have public-health interests. The membership of the Association has doubled during the year, and the admission of state health societies, including the professional and lay workers in public health in the various states, properly organized for the coördination of the various lines of public-health endeavor, will greatly enlarge its power and usefulness.

Important activities of the Red Cross include the Health Conference at Cannes, France, which took place on April 1-11, the organization of the International League of Red Cross Societies, and the formulating of plans for extensive public-health activities in the United States. At the Cannes conference the present organization of the international League of Red Cross Societies was formulated. This organization, under Henry P. Davison as chairman, is now in existence in conformity with the provisions made for it under Art. XXV of the Covenant League of Nations (see II, *International Relations*). Geneva, Switzerland, is the seat of the organization, which consists of three bureaus: a Bureau of Development (for the extension of the organization of Red Cross societies), a Bureau of Relief, and a Bureau of Hygiene and Public Health. The last named Bureau, headed by an American, Dr. Strong, will be, in effect, the health department of the League of Nations.

The plans of the American Red Cross for its future activities are not fully formed. It is determined, however, that they will include an extension of public-health nursing and the organization of health centers. It is certain that the employment of the large and enthusiastic personnel of this organization and its extensive financial resources will do much for the promotion of public health, especially as the closest possible coöperation with the official and other existing public-health agencies is the avowed policy of the Red Cross.

The nature of the health center which the Red Cross prepares thus is explained by its own definition:

A health center is the physical headquarters for the public-health work of a community. As such, it is the practical and concrete expression of the interest of the community in the health of its inhabitants. It constitutes a business-like way of associating health activities, both public and private, under one roof, in daily touch and in complete mutual understanding. The health center thus represents the latest step in the evolution of community health work, and answers the demand for efficient conservation of effort in bringing together important but hitherto independent health campaigns, such as those for the prevention of tuberculosis, venereal diseases, mental diseases, industrial diseases, and above all the vitally necessary modern effort for the conservation of child life. In turn, it offers new possibilities of properly relating these volunteer activities to the official health work of the city, county, state, and Federal authorities.

District Health-Officer Legislation.

—The report of a special committee on the progress of district health-officer legislation at the Conference of State and Provincial Boards of Health at Atlantic City in June (*Am. Jour. Pub. Health*, Aug., 1919), shows that the number of full-time district health officers is rapidly increasing. The replies to the questionnaires sent out by this committee show that seven states or territories have passed new laws since May, 1918. These are Alaska, Arkansas, Delaware, Ohio, New Mexico, Vermont, and West Virginia. Six other states had provided for full-time district health officers by previous enactment, so that 12 states have made progress in this direction within the last three years. The Ohio law provides that each county and each city of more than 25,000 population must employ a full-time district health officer, a public-health nurse, and a clerk, and in addition the State Department of Health is provided with eight district health supervisors. The salaries for local men range from \$2,000 to \$6,000 a year, and those of the district supervisors range from \$2,000 to \$3,000 a year. The Vermont bill provides for 10 full-time health officers at a salary of \$2,500 a year and traveling expenses. The West Virginia law authorizes a three-mill tax for the employment of full-time health officers

(presumably local). The Arkansas report states that satisfactory applicants have not been obtained. The new State Department of Health of New Mexico authorizes the employment of district health officers.

State Health Departments.—Every state in the United States now has a state department of health, the most recently organized department being that of New Mexico, created by statute of 1919. It is composed of a Board of Health consisting of three members, one only of whom need be a physician, a commissioner, and an administrative staff. The Board of Health is appointed by the governor. Each member serves for six years without salary. The board has power to pass such regulations concerning public health as are necessary for the enforcement of the statute, and such regulations have the effect of law. The commissioner is required to have had experience and special training in public-health administration. (*Am. Jour. Pub. Health*, ix, No. 10.)

The states are rapidly increasing their appropriations for public-health work. Indiana has established four new divisions in the State Department of Health with special appropriations as follows: tuberculosis, \$10,000; child hygiene, \$10,000; rural hygiene, \$25,000; venereal disease, \$29,000. Beginning with 1920 the annual appropriation for health work in Maine will be \$76,000, a considerable increase over the \$20,000 appropriation of 1916. New Jersey has added nearly \$100,000 for its child-welfare programme. New Mexico is appropriating \$8,000 for its new Health Department for the first year. Many other states, including Ohio, Oklahoma, Iowa, Wisconsin, Colorado, Delaware, North Dakota, and Illinois, have markedly increased their appropriations for health work.

Federal Health Administration.—In an address at the American Public Health Association meeting at New Orleans on Oct. 29, Dr. W. S. Rankin, president of the Association for 1920, discussed the problem of Federal health administration. He pointed out (*Am. Jour. Pub. Health*, Nov., 1919) the present lack of co-ordination in the health work being attempted by three departments of

the Government, namely, the Children's Bureau in the Department of Labor, the Bureau of Education in the Department of the Interior, and the U. S. Public Health Service in the Treasury Department. The Association went on record as favoring the resolutions already introduced into Congress for the appointment of a Congressional committee to make a thorough investigation of (1) the powers of the Federal Government in health work; (2) the activities of the Federal Government now under way; and (3) the duties of the Federal Government in health administration. Such a Congressional body would sit for several months and collect data upon which it could recommend to Congress the proper coördination and unification of Federal health work.

A Department of Health for Canada.—Following the example of Great Britain, Canada has established a Dominion Department of Health comparable with the other Government departments. The act provides for a Department of Health presided over by a minister of the Crown to be named by the Governor-General, a Deputy Minister of Health appointed by the Governor-General, and the necessary staff appointed in accordance with the provisions of the Civil Service Act. The Minister of Health is given broad duties and powers, including coöperation with local health agencies, the maintenance of a National Laboratory, the inspection and

medical care of immigrants and seamen, the health supervision of all methods of transportation, the supervision of Dominion public buildings and offices, the collection of vital statistics, the enforcement of health laws, rules, and regulation, and such other matters related to health as may be referred to the Department by the Governor in Council. A Dominion Health Council is also created, consisting of the Deputy Minister of Health and the chief executive officer of each provincial department or board of health, together with five other persons appointed by the Governor-General, which is charged with such duties and powers as the Governor-General may prescribe.

New Public-Health Periodicals.—May, 1919, saw the first issue of two new and important monthly magazines in the Public-Health field, *Modern Medicine* and the *Journal of Industrial Hygiene*. *Modern Medicine*, published by the Modern Hospital Publishing Co. of Chicago, and edited by a group of well known public-health experts, includes in its scope the broad field of public-health activities with special emphasis upon the medical phases of health work. The *Journal of Industrial Hygiene* is published by the Macmillan Co. and has a board of managing editors at the Harvard Medical School, Boston. It treats all the technical problems of industrial hygiene and gives a review of the literature in this field.

VITAL STATISTICS

Registration Area for Deaths.—The Bureau of the Census report on *Mortality Statistics* of 1917, compiled too late for the customary summary in the YEAR BOOK for 1918 (*A. Y. B.*, 1918, p. 723), gives the latest data available on death and birth rates in the United States.

The registration area for deaths is composed chiefly of those states in which the registration under state laws is so sufficiently complete that transcripts are obtainable by the Bureau of the Census as the basis for the annual compilation of mortality statistics; but certain cities in non-registration states are also included, the registration of deaths in these cities

being conducted under local ordinances. It will be seen in the table following that the registration area for deaths now embraces nearly three-quarters (72.7 per cent.) of the total population of continental United States, but only a little over two-fifths (45.4 per cent.) of the land area of the country (2,973,890 sq. miles) is represented. The table on the following page shows the growth of the registration area and the death rate therein up to the close of the year 1917.

The state of Tennessee and eight cities in non-registration states were admitted to the registration area for deaths beginning with 1917.

REGISTRATION AREA FOR DEATHS

YEAR	Popula- tion of Continen- tal United States	REGISTRATION AREA FOR DEATHS					
		Population		Land Area		Deaths from all Causes 1	
		Number	Per Cent. of Total	Square Miles	Per Cent. of Total	Number	Rate per 1,000 Popu- lation
Census year 1879-1880	50,155,783	8,538,366	17.0	16,481	0.6	169,453	19.8
Census year 1889-1890	62,622,250	19,659,440	31.4	90,695	3.0	386,212	19.6
Census year 1899-1900	75,944,575	28,807,269	37.9	176,878	5.9	512,669	17.8
Calendar year 1900...	77,747,402	30,765,618	40.5	212,621	7.1	539,939	17.6
Calendar year 1901...	79,365,396	31,370,952	40.3	212,770	7.2	518,207	16.5
Calendar year 1902...	80,983,390	32,029,815	40.4	212,762	7.2	508,640	15.9
Calendar year 1903...	82,601,384	32,701,083	40.4	212,762	7.2	524,415	16.0
Calendar year 1904...	84,219,378	33,345,163	40.4	212,744	7.2	551,354	16.5
Calendar year 1905...	85,837,372	34,052,201	40.4	212,744	7.2	545,533	16.0
Calendar year 1906...	87,455,366	41,983,419	48.9	603,066	20.3	658,105	15.7
Calendar year 1907...	89,073,360	43,016,990	49.2	603,151	20.3	687,034	16.0
Calendar year 1908...	90,691,354	46,789,913	52.5	725,117	24.4	691,574	14.8
Calendar year 1909...	92,309,348	50,870,518	56.1	765,738	25.7	732,538	14.4
Calendar year 1910...	93,927,342	53,843,896	58.3	997,978	33.6	805,412	15.0
Calendar year 1911...	95,545,336	59,275,977	63.1	1,106,734	37.2	839,284	14.2
Calendar year 1912...	97,163,330	60,427,247	63.2	1,106,777	37.2	838,551	13.9
Calendar year 1913...	98,781,324	63,298,718	65.1	1,147,039	38.6	890,848	14.1
Calendar year 1914...	100,399,318	65,989,295	66.8	1,228,644	41.3	898,059	13.6
Calendar year 1915...	102,017,312	67,336,992	67.1	1,228,704	41.3	909,155	13.5
Calendar year 1916...	103,635,306	71,621,632	70.2	1,307,819	44.0	1,001,921	14.0
Calendar year 1917...		75,307,906	72.7	1,349,629	45.4	1,068,932	14.2

1 Exclusive of stillbirths.

Death Rates.—The death rate of the registration area for 1912 (13.9 per 1,000) was the lowest recorded up to that time. The rate in 1913 (14.1) was slightly higher than that of 1912 but lower than any rate previously recorded. In 1914 the rate fell to the new low record of 13.6, and in 1915 the record was still further lowered to 13.5, but in 1916 the death rate again increased to 14.0 and in 1917 a further increase to 14.2 was recorded.

The annual crude death rates per 1,000 population, for all registration states and cities of 100,000 population or over, for the years 1906-1910, 1916 and 1917, are given in the table above. It must be remembered in comparing crude death rates that such figures are affected by peculiarities of the distribution of population. Color, race, sex, and age must be considered. The rates shown for the large American cities are all low and without exception indicate a very favorable mortality. The high rates shown for certain cities of the South are due to the large proportion of colored population; a marked decrease was shown in 1917 in some of these cities. The low death rates shown for Seattle,

Portland, and certain other cities are dependent to some extent on the favorable age distribution of the population.

Causes of Death.—The death rates for certain important causes of death per 100,000 population in the registration area of the United States from 1901 to 1917 are given in the accompanying table, compiled from the report of the Census Bureau for 1917.

There was a marked increase in the number of deaths, 1,068,932, in 1917, over the preceding year. Of these deaths, nearly one-third were due to three causes, heart diseases, pneumonia, and tuberculosis, and nearly another third resulted from the following nine causes: Bright's disease and nephritis, apoplexy, cancer, diarrhea and enteritis, arterial diseases, influenza, diabetes, diphtheria, and bronchitis.

Birth Rates.—The collection of both birth and death statistics was authorized by the permanent Census Act, approved March 6, 1902, to be obtained from the registration records of such states and municipalities as possessed records affording satisfactory data. Since the passage of this Act the Census Bureau has made an-

XXV. THE MEDICAL SCIENCES

ANNUAL CRUDE DEATH RATES PER 1,000 PERSONS LIVING, 1906-16

Area	Death Rate from All Causes ¹ per 1,000 Estimated Population			Area	Death Rate from All Causes ¹ per 1,000 Estimated Population		
	Annual Average 1906-10	1916	1917		Annual Average 1906-10	1916	1917
Registration area....	15.1	14.0	14.2	Registration cities of 100,000 population in 1910—continued			
Registration states ² ..	15.0	13.9	14.0				
Urban districts ²	16.3	15.0	15.2				
Rural districts	13.4	12.9	13.0				
Registration cities in other states	15.9	15.3	16.3				
All registration cities ²	16.2	15.0	15.3	New Haven, Conn..	17.3	17.0	17.1
Registration states:				Washington, D. C..	19.6	17.8	18.1
California	13.9	13.5	13.9	Atlanta, Ga.	19.4	15.3	16.2
Colorado	14.3	10.3	10.9	Chicago, Ill.	14.9	14.5	11.9
Connecticut	15.6	16.3	16.5	Indianapolis, Ind...	15.2	15.6	16.2
Indiana	13.0	13.6	14.0	Louisville, Ky.	17.4	15.0	16.5
Kansas	(3)	10.9	11.3	New Orleans, La...	21.7	18.4	19.9
Kentucky	(3)	12.6	13.7	Baltimore, Md.	19.5	18.1	19.1
Maine	16.2	15.7	15.1	Boston, Mass.	17.9	16.9	16.6
Maryland	16.0	16.5	17.1	Cambridge, Mass...	15.1	13.5	14.0
Massachusetts	16.1	15.2	15.0	Fall River, Mass....	19.7	17.0	16.3
Michigan	13.6	15.1	15.2	Lowell, Mass.	19.4	17.3	17.0
Minnesota	(4)	10.7	10.3	Worcester, Mass....	17.1	17.8	16.8
Missouri	(3)	12.9	13.3	Detroit, Mich.	14.8	19.0	19.0
Montana	(4)	12.6	13.9	Grand Rapids, Mich.	13.3	12.2	13.1
New Hampshire....	17.2	16.1	16.8	Minneapolis, Minn...	11.0	12.4	11.8
New Jersey	15.4	15.0	14.6	St. Paul, Minn.	11.0	11.3	10.8
New York	16.4	14.8	14.7	Kansas City, Mo....	14.6	14.5	16.4
North Carolina	(4)	13.1	14.0	St. Louis, Mo.	15.6	14.9	15.1
Ohio	(4)	14.4	14.8	Omaha, Nebr.	13.8	14.4	13.0
Pennsylvania	15.5	14.6	14.8	Jersey City, N. J...	17.7	14.6	14.5
Rhode Island	16.7	15.5	15.3	Newark, N. J.	17.2	15.0	14.2
South Carolina	(3)	13.8	14.5	Paterson, N. J.	15.7	14.5	14.0
Tennessee	(3)	(6)	13.4	Albany, N. Y.	18.6	19.3	19.1
Utah	(4)	10.4	10.4	Buffalo, N. Y.	16.0	16.1	16.1
Vermont	16.1	15.6	15.0	New York, N. Y.	16.9	13.9	13.7
Virginia	(3)	14.7	14.3	Rochester, N. Y.	14.7	14.4	15.4
Washington	(4)	7.7	7.6	Syracuse, N. Y.	15.2	15.2	15.4
Wisconsin	(4)	11.8	11.5	Cincinnati Ohio ...	18.1	16.4	16.5
Registration cities of 100,000 population or over in 1910.				Cleveland, Ohio ...	14.1	14.8	15.7
Birmingham, Ala...	(4)	14.1	20.2	Columbus, Ohio ...	15.1	15.5	15.4
Los Angeles, Cal...	14.8	12.3	12.5	Dayton, Ohio	15.5	15.2	15.9
Oakland, Cal.	15.4	10.5	10.6	Toledo, Ohio	14.9	18.1	17.7
San Francisco, Cal.	16.1	15.4	15.2	Portland, Ore.	10.3	8.0	7.8
Denver, Colo.	17.5	11.5	12.0	Philadelphia, Pa. ...	17.7	16.2	17.1
Bridgeport, Conn. ...	15.5	19.4	18.2	Pittsburgh, Pa.	18.0	17.4	18.2
				Scranton, Pa.	16.3	14.4	15.0
				Providence, R. I.	17.6	15.8	15.4
				Memphis, Tenn. ...	20.6	(3)	19.9
				Nashville, Tenn. ...	19.3	(3)	16.5
				Richmond, Va.	22.5	19.7	18.5
				Seattle, Wash.	9.8	7.0	6.9
				Spokane, Wash.	12.8	7.0	7.4
				Milwaukee, Wis. ...	13.7	12.7	12.3

1 Exclusive of stillbirths.

2 Includes District of Columbia.

3 Not admitted to registration area until a later date.

4 Figures for deaths not available for the entire period, 1906-1910.

nual collections of mortality statistics from a steadily increasing area, but until recently very few of the states have maintained reliable birth-registration systems. In this respect the United States has lagged far behind a number of the leading European countries. A beginning was made in this country in 1915, however, and

statistics are now available relating to an area having a population of one-third of that of the whole country. For the year 1917 the states of Indiana, Kansas, Kentucky, North Carolina, Ohio, Utah, Virginia, Washington, and Wisconsin are shown in the birth-registration area. The table on page 722 gives the birth-rates and

XXV. THE MEDICAL SCIENCES

DEATH RATES PER 100,000 POPULATION FROM IMPORTANT CAUSES OF DEATH, 1901-17

CAUSE OF DEATH	Annual Average, 1901 to 1905	Annual Average, 1906 to 1910	1914	1915	1916	1917 ⁴
Typhoid fever	32.0	25.6	15.4	12.1	13.3	13.4
Malaria	4.8	2.6	2.2	2.3	3.0	3.2
Smallpox	3.4	0.2	0.3	0.3	0.2	0.3
Measles	9.0	10.8	6.8	5.4	11.1	13.9
Scarlet fever	11.0	10.6	6.6	3.6	3.3	4.3
Whooping cough	10.9	11.5	10.3	8.1	10.2	10.4
Diphtheria and croup	29.6	22.4	17.9	15.7	14.5	16.5
Influenza	19.9	16.4	9.1	16.0	26.4	17.2
Dysentery	8.6	6.5	4.6	3.7	5.0	6.0
Erysipelas	4.5	4.2	3.7	3.5	3.7	3.8
Rabies	0.1	0.2	0.1	0.1	0.1	0.1
Tetanus	3.5	2.7	2.1	1.8	1.7	1.8
Pellagra	(1)	0.2	2.3	4.2	3.3	4.9
Tuberculosis (all forms)	192.6	168.7	146.8	145.8	141.6	146.3
Tuberculosis of the lungs ²	170.7	146.8	127.8	127.7	123.8	123.8
Tuberculous meningitis	8.9	9.1	8.2	8.1	8.0	8.1
Syphilis	4.1	5.4	7.9	8.6	9.6	10.4
Cancer and other malignant tumors...	67.9	72.6	79.4	81.1	81.8	81.6
Diabetes	11.5	13.7	16.2	17.5	17.0	16.9
Leukemia	1.2	1.5	2.0	2.0	2.0	2.1
Alcoholism (acute or chronic)	6.1	5.8	4.9	4.4	5.8	5.2
Meningitis (total)	31.7	19.4	8.8	7.4	7.1	8.9
Acute anterior poliomyelitis (infantile paralysis)	(3)	(3)	1.1	1.0	10.1	1.6
Apoplexy	69.6	71.7	77.7	179.3	81.3	82.9
Paralysis without specified cause	20.1	16.1	9.7	9.0	7.2	7.2
Epilepsy	4.4	4.2	3.9	3.8	4.0	4.2
Diseases of the circulatory system (total)	161.2	177.7	187.8	194.2	197.7	201.4
Organic diseases of the heart	124.2	133.2	141.8	147.1	150.1	153.1
Diseases of the respiratory system (total)	220.5	188.1	157.7	162.5	165.4	177.8
Acute bronchitis	21.4	15.2	9.7	9.7	9.4	18.7
Chronic bronchitis	15.4	11.1	7.7	7.7	6.8	6.7
Bronchopneumonia	32.9	4.04	48.7	49.8	49.0	50.3
Pneumonia (total)	125.5	103.0	78.3	82.9	88.3	98.9
Pleurisy	4.6	4.1	3.7	3.4	3.6	3.8
Diseases of the digestive system (total)	195.2	193.2	151.0	141.1	148.0	145.8
Ulcer of the stomach	2.9	3.6	4.1	4.3	4.6	4.4
Diarrhea and enteritis (under 2 years)	89.0	96.2	66.0	59.5	65.6	64.0
Diarrhea and enteritis (over 2 years)	20.2	16.7	13.4	12.2	13.7	15.0
Appendicitis and typhlitis	11.0	11.2	12.3	12.5	12.8	12.4
Hernia, intestinal obstruction	13.0	12.9	11.7	11.3	11.3	11.5
Cirrhosis of the liver	14.4	14.3	12.9	12.5	12.3	11.4
Simple peritonitis (nonpuerperal)	10.8	6.1	2.8	2.3	1.9	2.0
Acute nephritis	9.6	10.1	9.0	8.9	8.3	8.3
Bright's disease	87.4	87.4	93.4	95.8	96.9	99.1
Puerperal septicemia	6.3	6.8	7.1	6.3	6.7	6.9
Suicide	13.9	16.0	16.6	16.7	14.2	13.2
Accident	84.9	86.0	78.5	76.2	83.9	80.2
Homicide	2.9	5.9	7.3	6.9	7.1	7.6

1 Less than one-tenth of one per 100,000 population.

2 Includes acute military tuberculosis.

3 Not separately reported.

4 The death rates in this table do not include those of soldiers and sailors after the United States entered the Great War.

infantile-mortality rates for the calendar year 1917.

International Statistics.—The YEAR Book for 1917 gave tables of birth and death rates per 1,000 persons living in the principal foreign countries, taken from the report of the Registrar-General of England and Wales for

1915 and containing some figures for that year. The publication of these international statistics by the Registrar-General was suspended because of the war. Henceforth they are to be compiled by the International Statistical Institute, but so far only those for 1914 have appeared.

XXV. THE MEDICAL SCIENCES

BIRTH RATES IN THE REGISTRATION AREA, 1917

Area	Births ¹		Infantile Mortality ³	Area	Births ¹		Infantile Mortality ³
	Number	Rate ²			Number	Rate ²	
The registration area	1,353,792	24.6	94	Cambridge, Mass...	2,763	24.2	75
White	1,280,288	24.5	91	Fall River, Mass...	3,897	29.3	153
Colored	73,504	25.8	151	Holyoke, Mass.	1,779	26.8	(4)198
Urban areas	682,158	25.3	100	Lawrence, Mass.	2,382	28.0	122
Rural areas	671,634	23.9	88	Lowell, Mass.	3,289	28.8	140
Registration states:				Lynn, Mass.	2,178	20.8	80
Connecticut	37,481	29.6	94	Malden, Mass.	1,035	19.8	64
Indiana	63,144	22.3	86	New Bedford, Mass...	3,665	30.1	135
Kansas	38,601	20.8	77	Somerville, Mass...	2,055	23.2	68
Kentucky	61,698	25.8	87	Springfield, Mass...	3,615	33.3	91
White	57,262	26.6	82	Worcester, Mass....	5,280	31.8	95
Colored	4,436	18.1	152	Detroit, Mich.	26,298	42.4	103
Maine	16,651	21.4	93	Flint, Mich.	2,026	35.3	100
Maryland	33,963	24.7	120	Grand Rapids, Mich.	3,051	23.0	83
White	27,519	24.1	101	Saginaw, Mich.	1,195	21.2	99
Colored	6,444	27.9	201	Duluth, Minn.	2,259	23.3	88
Massachusetts	95,672	25.3	98	Minneapolis, Minn..	8,675	23.2	71
Michigan	89,159	28.8	88	St. Paul, Minn.	5,151	20.4	74
Minnesota	54,795	23.7	67	Manchester, N. H. ..	2,209	27.7	159
New Hampshire ...	9,569	21.5	116	Albany, N. Y.	2,259	21.2	109
New York	246,019	23.5	91	Binghamton, N. Y. ..	1,606	29.3	105
North Carolina	76,290	31.3	190	Buffalo, N. Y.	13,487	28.3	104
White	52,850	31.6	85	New York, N. Y.	141,234	24.6	89
Colored	23,440	30.8	133	White	138,231	24.6	87
Ohio	120,949	23.2	92	Colored	3,003	25.0	176
Pennsylvania	222,505	25.7	111	Rochester, N. Y.	6,938	26.2	84
Rhode Island	15,286	24.4	108	Schenectady, N. Y. ..	2,366	22.8	97
Utah	13,630	30.7	69	Syracuse, N. Y.	4,199	26.5	102
Vermont	7,553	20.7	85	Troy, N. Y.	1,419	18.2	(4)141
Virginia	60,753	27.5	98	Utica, N. Y.	2,567	28.8	107
White	41,924	27.3	80	Yonkers, N. Y.	2,487	24.1	85
Colored	18,829	27.7	137	Akron, Ohio	4,531	48.4	112
Washington	23,464	14.7	69	Canton, Ohio	1,907	30.5	100
Wisconsin	59,124	23.4	78	Cincinnati, Ohio ..	7,817	18.9	88
Registration cities of 50,000 or more population in 1910:				Cleveland, Ohio ...	20,274	29.3	109
Bridgeport, Conn...	5,109	41.0	87	Columbus, Ohio ...	4,398	20.0	88
Hartford, Conn. ...	4,249	37.7	103	Dayton, Ohio	3,311	25.7	96
New Britain, Conn.	2,103	38.0	107	Toledo, Ohio	5,684	28.1	95
New Haven, Conn...	5,161	33.9	84	Youngstown, Ohio..	3,453	30.8	147
Waterbury, Conn...	2,869	32.2	105	Allentown, Pa.	1,897	29.1	144
Washington, D. C. .	7,485	20.3	97	Altoona, Pa.	1,532	25.7	89
White	5,250	19.5	71	Erie, Pa.	2,494	32.6	87
Colored	2,235	22.2	160	Harrisburg, Pa. ...	1,583	21.6	81
Evansville, Ind.	1,509	19.6	117	Johnstown, Pa.	2,246	31.9	130
Ft. Wayne, Ind....	1,727	22.1	67	Lancaster, Pa.	1,276	24.8	92
Indianapolis, Ind...	5,955	21.0	95	Philadelphia, Pa. ...	42,788	24.7	108
South Bend, Ind...	1,799	25.3	102	White	40,385	24.7	103
Terre Haute, Ind...	1,214	18.0	89	Colored	2,403	23.7	192
Kansas City Kan.	2,097	20.5	112	Pittsburgh, Pa.	16,543	28.2	120
Wichita, Kan.	1,300	17.7	81	White	15,888	28.5	116
Covington, Ky.	1,179	19.8	105	Colored	655	23.0	209
Louisville, Ky.	4,112	17.1	97	Reading, Pa.	2,577	23.1	104
White	3,593	18.1	87	Scranton, Pa.	3,298	22.1	148
Colored	519	12.3	166	Wilkes-Barre, Pa. .	2,094	26.7	103
Portland, Me.	1,393	21.5	81	York, Pa.	1,073	20.3	72
Baltimore, Md.	15,040	25.3	118	Pawtucket, R. I.	1,534	25.3	112
White	12,645	25.0	103	Providence, R. I.	6,395	24.6	102
Colored	2,395	26.9	197	Salt Lake City, Utah	2,968	24.4	67
Boston, Mass.	19,877	25.9	99	Norfolk, Va.	2,116	23.2	112
White	19,511	26.0	98	White	1,303	22.5	62
Colored	366	21.5	167	Colored	813	24.4	193
Brockton, Mass....	1,518	22.0	67	Richmond, Va.	3,790	23.9	136
				White	2,500	24.5	94
				Colored	1,290	22.8	219
				Seattle, Wash.	4,876	13.3	61
				Spokane, Wash.	2,104	13.3	62
				Tacoma, Wash.	1,647	14.0	55
				Milwaukee, Wis.	11,289	25.4	100

1 Exclusive of stillbirths. 2 Birth rate per 1,000 estimated population. 3 Deaths of infants under one year of age per 1,000 births. 4 Area containing infant homes.

XXVI. THE PHILOSOPHICAL AND SOCIAL SCIENCES

PHILOSOPHY

HARRY TODD COSTELLO

General.—The American contributions to philosophy during the year have been notably less numerous than the English. In America the sudden readjustments that were occasioned by the changing war situation played havoc with philosophy, whereas in England the continuation of the war had become more and more stimulating to a philosophical productivity which still continues. On both sides of the Atlantic, but particularly in England, there has been a rich output of writings bearing on what was selected by the Western Philosophical Association (meeting of April 18–19, 1919, at the State University of Iowa) as its chief topic for the year, namely, "The Function of Philosophy in Social Reconstruction." In England there has also been a distinct increase of interest in theology. The American Philosophical Association (meeting of Dec. 27–28, 1918, at Cambridge, Mass.) was much less concerned with either social philosophy or theology and devoted most of its time to a debate on "Vitalism and Mechanism," participated in by various scientists and philosophers, all agreeing that the scientist must assume definiteness and constancy in his subject-matter, but otherwise leaving the question much as they found it. The social problem reappeared at the 1919 meeting (Dec. 30–31, at Ithaca, N. Y.), the question set in advance for discussion being "The Nature of the Community."

Metaphysics and Philosophy of Religion.—Near the close of 1918 Wilmon H. Sheldon published his own philosophical system in a book, *The Strife of Systems and Productive Duality*. It contains a brilliant critical review of previous systems of metaphysics, which are used as stepping-stones to lead up to the author's

own constructive synthesis. Followers of the systems thus made use of would probably protest that a different outcome would be equally plausible, but the work is ably done and makes good reading. Charles Augustus Strong, author of a well known study of the mind-body problem, *Why the Mind Has a Body*, has given us a more technical, indeed too technical, defense of his pan-psychist theory in *The Origin of Consciousness*, a book really about the nature of consciousness rather than about evolutionary origins. James Ward, author of the classic *Encyclopædia Britannica* article on psychology, has at last stated his views in book form in *Psychological Principles* (Putnam), which, because of its fundamental character, is of interest to philosophers as well as to psychologists.

Theological interest has given us several notable additions to the volumes of Scottish Gifford Lectures. Here may be mentioned *Moral Values and the Idea of God* (Putnam), by W. R. Sorley, a clear, candid, and cautious examination of what is the significance of the mere fact that there is such a thing as morality in the world, raising the query whether this is not a powerful reason pointing to the existence of a God. Clement C. J. Webb has dealt with the general question of personality in another series of Gifford Lectures, placing first the topic whether we can still believe in a personal God.

We may also mention in this connection some historical works, notably *The Philosophy of Plotinus*, Gifford lectures in two volumes by Wm. R. Inge (Longmans) and the new edition of Whittaker's *Neo-Platonists*, both able works, along with the translations of Plotinus by Mackenna and by Guthrie, which make the English-

reading student's task much easier in this field. During the year have appeared the second volume of George Foot Moore's *History of Religions* (Scribner) and the tenth of Hastings' *Encyclopedia of Religion and Ethics* (Scribner), books already assured by their predecessors of a place and an eager welcome in philosophical as well as in theological literature.

On metaphysics and the theory of knowledge, we may add also the following titles: *The Intuitive Basis of Knowledge*, by N. O. Lossky, translated from the Russian by Mrs. N. Duddington, but not characteristically Russian in its contents; *The Nature of Being*, by Henry H. Slessor; *Essays in Common-Sense Philosophy*, by C. E. M. Joad, a book intended for the layman in philosophy; and, perhaps more valuable, *Philosophical Currents of the Present Day*, by Ludwig Stein, a two-volume translation, made at the University of Calcutta by S. Maitra, of a well known and competent general survey of pre-war philosophy, especially full with regard to Germany.

As regards current movements in philosophy, so-called new realism has not been actively defended except by Bertrand Russell. Russell's lectures in London have attracted attention and some have been reprinted in the *Monist*, but his chief new departure has appeared first in an Aristotelian Society article, "Propositions: What They Are and How They Mean." He declares himself a behaviorist, except as regards memory images, abandons the claim of immediate knowledge of one's own existence as knower, describes belief as a feeling, and welcomes James' relational theory of consciousness, namely, that the mental and physical are two ways in which the same entities are put together; in short, he turns to American as against English new realism. A number of the old realists, who believe in a pretty sharp distinction between consciousness and the physical world, are reported as preparing a joint volume in exposition and defense of their views. Among these Santayana has recently given his general impressions of American philosophy in an interesting British Academy lecture.

Ethics and Social Philosophy.—

Mary Calkins has published a good little textbook of ethics, *The Good Man and the Good* (Macmillan), suited to beginners who want an approach through individual psychology rather than through problems of daily conduct. But most of the ethical writings of the year have had a sociological or political trend. *The Outlines of Social Philosophy* by John Stuart Mackenzie is, like all his books, excellent for the beginner but will scarcely replace his stimulating *Introduction to Social Philosophy*, now out of print. Bertrand Russell's *Proposed Roads to Freedom* (Holt) is another admirably written work, revealing how completely Russell is saturated with the traditions of British empiricism and utilitarian liberalism presented by Locke, Bentham, and the Mills, even following them in their peculiar naïve optimism and belief in the goodness of human nature and badness of human governments. Meanwhile, the more conservative J. W. Scott, in his *Syndicalism and Philosophic Realism*, tries to make out that Russell has, in common with Bergson and some of the syndicalists, the belief that reason plays little part in the march of social evolution, which is a product of blind instincts and brute facts.

Many writers of the metaphysical idealistic school are calling for a new social idealism and a more conscious evolution of society. Negatively, Leonard T. Hobhouse, in *The Metaphysical Theory of the State*, has mercilessly criticized the Hegelian absolute idealism for giving us the Prussian ideal of the State. But a better idealism is sought for in such works as *Social Purpose*, by Hetherington and Muirhead, in which the latter furnishes the metaphysical basis and the former follows with some concrete applications; or again, in George Plympton Adam's *Idealism and the Modern Age* (Yale Univ. Press). *The New State* (1918) by M. P. Follett presents a very concrete programme. Edward W. Hirst in *Self and Neighbor* emphasizes the community as the source of ethical value in a way that recalls Josiah Royce. In a work entitled *Cultural Reality* Florian Znaniecki maintains that philosophers

have busied themselves too much about physical atoms or simple mental states and forgotten the great new realities and concretely embodied values that civilization is even now creating around us in the realms of culture and art. His programme is good, but the execution of it in this particular book leaves much to be desired.

Here we may also call attention to the masterly historical study by Ernest Barker, *Greek Political Theory; Plato and His Predecessors*. Of several doctorate theses on John Locke one is worthy of mention in this connection as filling acceptably an important vacant niche in the history of political theory, namely, *The Moral and Political Philosophy of John Locke* by Sterling Lamprecht. We may here mention two translations which should give us a better understanding of Russian ethical philosophy: the one is of Vladimir Solovyof's *The Justification of the Good*; the other is of the encyclopædic survey of Russian thought by T. G. Masaryk, entitled, in English, *The Spirit of Russia*.

Logic.—An announcement of special interest to the student of logic is the resumption of publication of the Belgian periodical *Isis*, to appear hereafter chiefly in English text, edited by George Sarton. It will be devoted to scientific methods and the history of science. Longer monographs on logical subjects will appear in future volumes of George Singer's *Studies in the History and Method of Science*.

Books on general logic include *The Psychology of Conviction* (Houghton, Mifflin), by Joseph Jastrow, a book hardly readable enough for the general public or original enough to suit

the expert; a dissertation on *John Dewey's Logical Theory* by D. T. Howard, which is a fairly good review of Dewey's early development as a pragmatist; and *Exercises in Logic and Scientific Method*, by A. Wolf, a brief book chiefly useful to the elementary logic teacher in search of examples. But the important logical works of the year are two on symbolic logic: the one by C. I. Lewis of the University of California, *A Survey of Symbolic Logic*, a book for the serious special student; and the other by Bertrand Russell, entitled *An Introduction to Mathematical Philosophy* (Macmillan). The latter puts within the reach of the non-specialist some understanding of those researches into the logical foundations of mathematics for which Russell is most justly honored. Written in a style which makes hard things seem easy, it nevertheless deals with matters so novel to most readers that they will need all their wits about them as they read. But there is nothing else quite like it in any language.

Bibliography.—The above survey of the year's developments in philosophy is necessarily limited in scope and in detail. The seeker for fuller record is recommended to the philosophical journals, most of which carry reviews and abstracts of current philosophical literature, both book and periodical, with varying degrees of completeness and promptness. Such American journals include the *Philosophical Review*, *Journal of Philosophy*, *Psychology*, and *Scientific Method*, *International Journal of Ethics*, *Monist*, etc. The leading English journals are *Mind* and the *Hibbert Journal*. For purposes of bibliography *Mind* is probably the most useful publication.

PSYCHOLOGY

HERBERT SIDNEY LANGFIELD

General.—Nothing in recent years has affected the development of experimental psychology more than the work done by psychologists during the war. The immediate result is a wider application of psychological facts and methods to problems of industry, medicine, and education. An account of the activity of the psychologists in the

war has been presented in a "Report of the Psychological Committee of the National Research Council" by the chairman, R. M. Yerkes (*Psych. Rev.*, March, 1919). The most extensive work was that done by the Committee on the Psychological Examination of Recruits, R. M. Yerkes, chairman, and the Committee on Classification of

Personnel in the Army, W. D. Scott, chairman. For the Navy R. Dodge constructed an instrument to test gun pointers which was very generally used. There was also work done upon the problems of vision, shell-shock and reëducation, emotional stability, propaganda behind the German lines, acoustics, deception, psychological instruction and psychological service as related to military intelligence, chemical warfare, military education, and special training. An idea of the results of the Committee on 'Classification of Personnel may be obtained from the publication by the Adjutant-General's Department entitled "The Right Man in the Right Place in the Army." G. Stanley Hall, in his paper on "Some Relations between the War and Psychology" (*Am. Jour. Psych.*, April, 1919), states that since "the substitute for war is to control nature, so for psychologists it is to know and control psychic energies, which not merely cause war and peace but make all our lives their sport."

Theoretical.—That the behavior and functional methods in psychology are acquiring more importance is evidenced by the appearance in 1919 of three text-books emphasizing these methods, by W. R. Hunter (Univ. of Chicago Press), J. B. Watson (Lippincott), and W. C. Warren. M. F. Washburn upholds the dualistic view, which includes introspection, against D. de Laguna's arguments for behaviorism ("Dualism in Animal Psychology," *Jour. Philos., Psych., and Scientific Methods*, Jan. 16, 1919). In a relatively short paper on the "Evolution of Behavior" H. H. Bawden has sketched the behavior of organisms toward their environment (*Psych. Rev.*, July, 1919). H. R. Marshall, in his latest book entitled *Mind and Conduct* (Scribner, 1919), dwells particularly upon the nature of instincts, intuition, reason and the self, and the functions of pain, pleasure and happiness.

Experimental.—Among the papers upon methods is an article upon "The Learning Curve Equation" by L. L. Thurstone, who has devised a statistical method of treating learning data (*Psych. Monogr.*, No. 114, 1919). H. A. Toops has described a simple method of "Plotting Equations of

Three Variables in Mental Measurements" (*Psych. Rev.*, July, 1919). In the field of sensations C. E. Ferree and G. Rand have made a careful investigation of the "Chromatic Thresholds of Sensation from Center to Periphery of the Retina and their Bearing on Color Theory" (*ibid.*, March, 1919). These authors have also, in "A Study of Ocular Functions with Special Reference to Aviation," devised a method of ascertaining the rapidity with which the eye can adjust for clear vision at different distances (*Am. Jour. Psych.*, Jan., 1919). C. H. Griffiths and W. J. Baumgartner in their work on "The Correlation between Visualization and Brightness Discrimination" found little positive correlation between these functions. In their second paper the authors discuss their results in reference to existing color theories (*Psych. Rev.*, Jan. and Feb., 1919). In "A Study of Tonal Attributes" G. J. Rich asserts that the pure vowel sounds do not occur in the same place in the scale with all observers, nor do they lie an octave apart (*Am. Jour. Psych.*, April, 1919). F. A. C. Perrin, in his experiments upon "The Learning Curves of the Analogies and the Mirror Reading Tests" (*Psych. Rev.*, Jan., 1919), found that in both these tests the superior subjects, as contrasted with the inferior, disclosed less capacity for improvement and less tendency for variability. E. B. Titchener in investigating an "Anomalous Case of Simple Reaction" found that the subject seemed incapable of motor reaction to sound (*Am. Jour. Psych.*, Jan., 1919). Several papers upon handwriting have appeared. C. L. Hull and R. B. Montgomery made "An Experimental Investigation of Certain Alleged Relations between Character and Handwriting" (*Psych. Rev.*, Jan., 1919). They tested the results of Binet's investigation of individual graphologists but failed to corroborate his findings. The interest in experiments upon memory continues. C. L. Kjerstadt has found "that the factors of practice, warming up, the number of presentations, the length of material, and changes in time of exposure do not have any influence upon the general form of the memory curve" ("The Form of the Learning

Curves for Memory," *Psych. Monogr.*, No. 116, 1919). E. E. Shaw has found that the vocabulary of an individual is influenced by the type of imagery he employs ("Some Imaginal Factors Influencing Verbal Expression," *ibid.*, No. 113, 1919). In "The Psychology of Figures of Speech" J. E. Downey states that in similes and metaphors which "turn from the straight and narrow path of logical rectitude" things quite heterogeneous are united, thus creating new mental content" (*Am. Jour. Psych.*, Jan., 1919). S. C. Pepper has experimented upon "Changes of Appreciation for Color Combinations" (*Psych. Rev.*, Sept., 1919). E. S. Conklin discovered from the results of a questionnaire concerning the "Superstitious Belief and Practice among College Students" that 73 per cent. of the males and 90 per cent. of the females had at some time held superstitious belief (*ibid.*, Jan., 1919). J. E. Downey describes a method of analyzing the will make-up of an individual ("The Will-Profile," *Univ. of Wyoming Bull.*, Feb., 1919). A. A. Roback has used the data from experiments on the will as a basis for discussion of "The Freudian Doctrine of Lapses and Its Failings" (*Am. Jour. Psych.*, July, 1919). Included in the report of the investigation on "Human Vitality and Efficiency under Prolonged Restricted Diet," published by the Carnegie Institution of Washington, is an account of the psychological experiments performed by W. R. Miles. He found, among other things, that there was slower improvement in some tasks whereas others showed little or no change.

Abnormal.—Many psychologists, especially those who have had training in mental tests, have entered the field of abnormal psychology. A symposium upon "The Field of Clinical Psychology as an Applied Science" presents the views of well-known psychologists regarding this new development (*Jour. Applied Psych.*, March, 1919). Among the papers upon mental tests is one by S. L. and L. W. Pressey, entitled, "Are the Present Psychological Scales Reliable for the Examination of Adults?" (*Jour. Abnorm. Psych.*, Feb. 1919). They believe

that irregularity of performance is a useful criterion for an adult scale. In a paper entitled "What is the Problem of Stuttering," M. G. and S. Blanton state that they believe the cure should consist principally in re-education as to the use of muscles and imagery (*ibid.*, Feb., 1919). S. D. Robbins has made "A Plethysmographic Study of Shock and Stammering" (*Am. Jour. Physiol.*, April, 1919). K. M. Dallenbach has found that there is a slow and gradual improvement in visual apprehension of backward and feeble-minded children "The Effect of Practice upon Visual Apprehension in the Feeble-Minded," (*Jour. Educ. Psych.*, Feb., 1919). In a discussion of the "Sterilization of Degenerates and Criminals, Considered from the Standpoint of Genetics," R. Pearl asserts that compulsory sterilization should be practiced only upon those of both sexes who are actually and obviously degenerate and those of both sexes when one or more children are actually and obviously degenerate (*Eugenic Rev.*, April, 1919). E. J. Kempf in "The Mechanistic Classification of Neuroses and Psychoses Produced by the Distortion of Autonomic-Affective Functions" describes some of the functional disturbances of repression and dissociation which underlie abnormal mental conditions (*Jour. Nervous and Mental Disease*, Aug., 1919).

Animal.—In the field of animal psychology interest continues in the learning process. P. F. Swindle, in two papers entitled "Some Forms of Natural Training to which Certain Birds are Subjected" and "The Peristaltic-like Nature of Organic Responses," reports further facts of the rhythmical movements of animals and human beings (*Am. Jour. Psych.*, April, 1919). In an experiment upon "The Influence of Extraneous Controls in the Learning Process," H. Carr and H. Koch have shown that in habit formation not only the mere doing of a series of acts, but the selection of a proper act and the rejection of erroneous ones are important (*Psych. Rev.*, July, 1919). R. T. Wiltbank, in experimenting upon the "Transfer of Training in White Rats upon Various Series of Mazes," found that the learning of one or more

mazes usually helped the learning of another which immediately followed (*Behavior Monogr.*, No. 17, 1919). H. H. Wylie has made a similar study ("An Experimental Study of Transference of Response in the White Rat," *ibid.*, No. 16, 1919). From experiments upon the "Effect of Alcohol upon the Intelligent Behavior of the White Rat and Its Progeny" A. H. Arlitt concludes that doses of alcohol, administered for long periods, have a decidedly bad effect upon the offspring (*ibid.*, No. 115, 1919).

Applied.—A number of psychologists are now acting as professional consultants in industry. W. B. Bingham has presented an outline of the "Army Personnel Work" and has briefly pointed out the ways in which the results obtained may be used in education and industry (*Jour. Applied Psych.*, March, 1919). Two papers that describe tests during the war are "Air Service Tests of Aptitude for Flying," by V. A. C. Henmon (*ibid.*, June, 1919), and "Mental Tests for Prospective Telegraphers, etc.," by L. L. Thurstone (*ibid.*, June, 1919). E. L. Thorndike has devised a series of tests available for foreigners and illiterates similar to the Beta examination used in the Army ("A Standardized Group Examination of Intelligence Independent of Language," *ibid.*, March, 1919). H. A. Toops and R. Pintner have made an analysis of the intellectual attainment of workmen in the various trades. They found that the journeymen were less educated than apprentices or experts ("Educational Differences among Tradesmen," *ibid.*, March, 1919). In discussing the "Principles Underlying the Classification of Men," T. L. Kelley states that the most important factors to be desired are initiative and originality, though too much originality makes routine performance unbearable (*Jour. Psych.*, March, 1919). S. Cody in his book *Commercial Tests and How to Use Them*, gives the history and technique of the national ability tests used by the U. S. Employment Service of New York City (Yonkers, World Book Co., 1919).

Educational.—There has been a decided step in the development of mental tests as applied to education. The several directions taken are tests for

entrance requirements, tests of special ability in various school topics, and tests for feeble-mindedness. At Columbia University tests devised by E. L. Thorndike are now being used as an entrance requirement. The Carnegie Institute of Technology is working on the same problem, and L. L. Thurstone has written a paper entitled "Mental Tests for College Entrance" (*Jour. Educ. Psych.*, March, 1919). E. C. Tolman has tested the "English and Mathematical Abilities of a Group of College Students" (*ibid.*, Feb., 1919). L. M. Terman has found a close correlation between the 60-word test and the results of the Stanford-Binet scale ("Some Data on the Binet Test of Naming Words," *ibid.*, Jan., 1919). H. W. Chase and C. C. Carpenter, as a result of investigating "The Response of a Composite Group to the Standard Revision of the Binet-Simon Tests," have concluded that, owing to the effect of environment, separate norms will have to be made for different locations (*ibid.*, April, 1919). E. R. Wembridge and P. Gabel, in trials upon 100 children, have found a good correlation between the card test after the manner of Yerkes' multiple choice and the Stanford Revision of the Binet test ("Multiple-Choice Experiments applied to School Children," *Psych. Rev.*, July, 1919). G. Arthur and H. Woodrow have devised a test of absolute intelligence units to classify children according to mental ability ("An Absolute Intelligence Scale: A Study in Method," *Jour. Applied Psych.*, June, 1919). After examining over 60,000 girls and boys G. W. Frazer concludes that boys do not differ from girls in their variability of attainment ("A Comparative Study of the Variability of Boys and Girls," *ibid.*, June, 1919). J. C. Foster presents "A Case of Intellectual Development Despite Enforced Seclusion" to prove that mental tests do not depend upon education (*ibid.*, June, 1919). Wilfred Lay in *The Child's Unconscious Mind* (Dodd, Mead, 1919) applies the Freudian principles to pedagogy and recognizes the importance of understanding the child's individuality. D. Starch's *Educational Psychology* (Macmillan, 1919) contains many psychological data of interest to teachers.

ANTHROPOLOGY AND ETHNOLOGY

GEORGE GRANT MACCURDY

General Survey.—In the YEAR BOOK for 1918 (p. 724) mention was made of a section of anthropology in connection with the Surgeon-General's Office. One of the first fruits of this venture is a volume of 521 pages entitled *Physical Examination of the First Million Draft Recruits: Methods and Results*, compiled by Albert G. Love and C. B. Davenport (War Dept., Bull. No. 11, March, 1919). Of defects found in men at mobilization camps the commonest was flat foot (176,424 cases). Next came hernia (33,865 cases), which was found to be more common in cities than in rural districts. In the third place belong venereal diseases, with a total of 28,826 cases. Regarding the prevalence of flat foot, it is well to emphasize the fact that in a mixed white and colored population like ours racial differences in the foot and ankle are of immense importance. For example, the army boot made to fit the white man does not suit the colored man; neither can a Pott's fracture be treated in the same way in the two races.

At the time of the physical examinations of drafted men, measurements of height, weight, and chest circumference at expiration and inspiration were taken, mostly by medical officers. These data have been collated in the Medical Records Section of the Surgeon-General's Office, and it is expected that the results will shortly be published.

In June, 1919, the Secretary of War ordered that 100,000 soldiers who had been in the service for at least four months be measured for 21 dimensions. Ten anthropologists, given some preliminary training by A. Hrdlicka, were sent to a number of demobilization camps where the required measurements were made under their direction. Funds have been provided for the collation of the statistics thus obtained. In view of the measurements made under direction of Dr. B. A. Gould at the close of the Civil War, it is fortunate that these additional data have been secured which will indicate the change in the physique of the military population

of the United States after the lapse of over 50 years.

In the reorganization of the National Research Council one division will include both anthropology and psychology, each subject being represented by nine members. The divisional organization is in process of completion.

A notable work of the year is the *Handbook of Aboriginal American Antiquities* by Wm. H. Holmes, Part I of which (*The Lithic Industries*) is issued as Bull. 60 of the Bureau of American Ethnology. It is a volume of nearly 400 pages dealing with the fundamentals of the subject: with the scope of archeologic science, the character, extent and classification of its subject matter, progress of research; with problems of race origin, migration, culture evolution, and chronology; with ethnic characterization areas; with the acquirement of the substances employed in the arts, and finally with the manipulation of stone. The second volume of the *Handbook* is to be devoted exclusively to stone artifacts. Consideration of the more important arts and industries practiced by the native peoples, such as building, sculpture, the textile and fictile arts, and metallurgy will find place in additional volumes now in preparation.

Another smaller volume, but of wide general interest, is *Selected Readings in Anthropology*, published by the University of California (Sylabus Series, No. 101). The 27 articles are by almost as many authors and touch in every case with a master's hand nearly every phase of the anthropologic sciences (Univ. of California Press, August, 1919).

An administrative readjustment of anthropologic interest has just taken place in Mexico, a country abounding in ethnographic and prehistoric problems. The Bureau of Archeological and Ethnographical studies connected with the Department of Agriculture and Fuel is henceforth to be called the Bureau of Anthropology (*Direccion de Antropologia*). In July, 1919, appeared Vol. I, No. 1, of *El Mexico Antiguo*, a monthly publication cov-

ering the field of Mexican prehistory, ethnology, linguistics, and folklore. Hermann Beyer is the editor of the new journal.

In Europe there is evidence of increased anthropological activities, due in part at least to the ending of the Great War. The Paris School of Anthropology is planning to call a preliminary conference for the purpose of founding an International Institute of Anthropology. In Brussels there was founded in March, 1919, a new School of Anthropology. At Liège, Belgium, an association has been created having for its object the founding of a school of anthropology and the issuance of anthropological publications. The movement is headed by two names well known to the science, Max Lohest and Charles Fraipont. Mendes Correa, professor of anthropology at Oporto, announces the founding of the Portuguese Society of Anthropology and Ethnology.

Academic Teaching of Anthropology.—Those interested in the academic teaching of anthropology are referred to two articles in the *American Anthropologist* for January-March, 1919. The one, by Prof. Franz Boas, discusses the aims of the science, clearly pointing out how anthropology is indispensable to those who "deal with the practical problems of modern society both in its biological and cultural aspects;" and how its importance to the social worker, the physician in charge of public health, the teacher, and the legislator is not as yet clearly understood. The requirements of a department of anthropology are also enumerated. The second article, by George Grant MacCurdy, is on the academic teaching of anthropology in connection with other departments. There are in the United States 39 institutions where this is the case, and seven where the subject is on a more or less independent footing. The article reveals anthropology's wide range of affinities. There is, however, a marked leaning toward sociology, with which it is allied in 15 institutions. In six instances it is connected with the department of geology, and in four with biology. Then follow in diminishing degree its association with classical archeology, history, and psychology;

and only once (in each) is it connected with the departments of education, modern languages, and philosophy. Curiously enough, this tendency of the anthropologic sciences to appear as a curricular outgrowth preferably of the social and of the natural sciences runs counter to the recent (1907) action of the American Association for the Advancement of Science, when it grouped psychology with anthropology under Section H; also to that of the National Research Council when (in 1919) it combines anthropology and psychology to form one of its integral parts.

Antiquity of Man.—Discussions of the Piltdown remains continue to illumine the subject of man's antiquity. One such by John Cameron is included in a contribution to the evolution and morphology of the human skull with special reference to certain fossil Hominidae (*Trans Roy. Soc. Canada*, March, 1919). Cameron finds it difficult to accept the view that the Piltdown skull, which possesses an amount of frontal development above that of many modern races, could lay claim to the low type of jaw accredited to it. He is therefore inclined to support the recent opinion of G. S. Miller and of the present writer (*A. Y. B.*, 1918, p. 724), namely, that the characters of the jaw are incompatible with those of the cranium and belong to a species of anthropoid ape. Professor Giuffrida-Ruggeri of Naples, who has contributed to the discussion (*Monit. Zool. Ital.*, xxx, 7, 1919), likewise prefers to place the brain case and nasals in one category and the mandible and canine in another.

R. Broom (*Anthrop. Papers Am. Mus. Nat. Hist.*, xxiii, Pt. 2, 1918) thinks that in the Boskop skull from South Africa there is evidence of a new species of primitive man. This fragmentary specimen is said to have been found at a depth of about 4½ ft. The pieces, including some fragments of limb bones, belong apparently to one individual and might represent a burial, hence are not necessarily so old as the laterite deposit in which they were found. There were no associated fossil animal remains or artifacts, so that the age of the human remains and their title to rank as the

type of a new species of man must rest alone on their physical characters. In every case the characters on which the author relies to build up a new species of *Homo* upon critical examination do not seem to have any basis whatsoever in fact. The bones differ in no essential manner from those of recent man. Would it not therefore be better to withhold the use of the term *Homo Capensis* until a less "annoyingly imperfect" specimen shall have been found?

Cave Art in Spain.—Explorations in the paleolithic caves and rock shelters of Spain have continued despite the Great War. Two important monographs appeared in 1919 (*Comision de Investigaciones Paleontologicas y Prehistoricas*, Mem. Num. 23 and 24). The first of these, by H. Obermaier and P. Wernert, covers a small area in the province of Castellón, southeastern Spain. They explored eight caves and shelters along the Barranco de Valltorta and found many mural paintings somewhat stylistic in character, resembling the cave art previously described from the Spanish Levant. The figures are undoubtedly paleolithic and date from near the close of the Magdalenian epoch.

The second memoir, by Eduardo Hernandez-Pacheco, is based on finds made in the cavern of La Peña de Candamo, northern Spain, province of Asturias. This cavern ranks among the most important hitherto discovered in Spain, because of its size and beauty and the number and age of its mural engravings and paintings. These include practically every phase of mural art known to paleolithic man and represent at least two epochs, Aurignacian, the first art epoch, and Magdalenian, the last.

Canada.—The anthropological activities of the Geological Survey of Canada have resumed during 1919 something of their pre-war scope. Museum exhibits are still closed to the public, and anthropological publication has not yet been resumed, but three anthropological field trips during the summer evidence progress towards normal conditions. Of the three field trips undertaken, one was to Lorette, Que., by C. M. Barbeau, intended to secure information on the Huron Indians supplementary to full

data obtained in previous years. A second was a field inquiry into the ethnology, chiefly material culture, of the Ojibwa of Lac Seul, Ont., by F. W. Waugh. Finally, Harlan I. Smith initiated an archeological inquiry by taking up serious digging in shell heaps near Masset, Queen Charlotte Islands; this is the first intensive exploration carried on in Haida territory and is expected to throw considerable light on the history of West Coast Culture.

Dr. E. Sapir, chief of the Anthropological Division of the Survey, spent the greater part of the year in linguistic researches and the study of native kinship systems. The large body of Nootka text material, consisting of myths, family legends, and ethnological narratives, has now all been reduced to typewritten form. Revision, translation, and annotation of the bulk of this material are still required to put it in final shape for publication. These texts can hardly be published within a less compass than three volumes.—In the course of the year J. G. Wolf, interned at Kapuskasing, Ont., working under Franz Boas' direction, prepared a preliminary dictionary of Wishram, based on Dr. Sapir's "Wishram Texts" and on manuscript notes put at his disposal. Full dictionaries of the Chinookan dialects (Chinook, Kathlamet, Wishram) are likely now to be of more than ordinary interest in view of the surprising linguistic status of Chinookan revealed by Dr. Sapir's comparative researches, Chinookan proving to be a member of the Penutian group, with distinct, though remote, points of resemblance to Takelma and Coos-Sius law.—Following up previous work on Indian kinship systems (Yana, Kootenay, Nass River) Dr. Sapir undertook an extensive linguistic-sociological review of the kinship systems of Algonkin, Yurok, and Wiyot. The linguistic portion of this paper is finished and confirms with unexpected completeness Sapir's hypothesis of the Algonkin affinity of Yurok and Wiyot. The sociological portion of the paper has been begun and will throw light on a number of kinship developments within the enlarged Algonkin group.

During a brief period of summer field work C. M. Barbeau has added somewhat to the ethnographic information already gathered in previous years from the Lorette Huron half-breeds. Old specimens and photographs of technical processes and people have been obtained; a few folk tales and anecdotes recorded seem to be of Indian origin. Under Barbeau's direction much has recently been added to the French Canadian folk-lore collections. Over 150 folk-anecdotes based on ancient beliefs and customs have been recorded and over 400 photographs taken. E. Z. Massicotte and others have also, in collaboration with Barbeau, collected several hundred versions of folk songs and formulae.

A field trip extending from the latter part of June to nearly the middle of October was conducted by Waugh among the northern *saulteaux* of Lac Seul, a lake expansion of the English River, which is a tributary of Lake Winnipeg. The main object was the study of general material culture for which the region was found to be quite favorable. Among the subjects on which notes were recorded are: handicrafts, such as tanning, canoe making, birch-bark basketry, snowshoe making, the making of mocassins, toboggans, clothing, and dwellings; hunting and trapping methods; medicine; games; food preparation; and general folklore. A few notes were incidentally obtained on the Midewiwin, which is still held at Lac Seul. Photographs were obtained of ceremony, as well as of the various technological processes enumerated.

D. Jenness, who had been overseas with the Canadian forces, resumed his duties at the office in August and has since been engaged on a volume dealing with the general ethnology of the Copper Eskimos. It is hoped that this will be ready for the press early in 1920; it will be published as the first of a series of volumes relating to these people, being the ethnological report of the Canadian Arctic Expedition (A. Y. R., 1916, p. 660), of which Jenness was a member. The second and third volumes of the series are also nearing completion. One contains folklore gathered from Eskimos all along the Arctic coast from

Northern Alaska to Coronation Gulf, the other a series of cat's cradle figures from the same region. Some progress has also been made with a volume dealing with the physical anthropology of the Copper Eskimos.

California.—*Linguistic Families of California*, by R. B. Dixon and A. L. Kroeber, appeared in September (*Univ. of Cal. Publ. in Am. Archæol. and Ethnol.*, xvi, No. 3). Field explorations under the direction of Professor Kroeber have been pushed vigorously.

The work of Juan Dolores among the Papago was continued until April, 1919. J. Alden Mason coöperated with Dolores in the field. Following Dolores' work came that of W. C. McKern among the Wintun Indians of the Sacramento valley. Paul Radin has pursued his linguistic work among the Wappo. The only archeological work carried on has been in the hands of L. L. Loud, who has made a survey of the ancient village sites in Sonoma valley. E. W. Gifford spent three weeks in May and June among the Pomo, giving particular attention to social organization and land ownership. A California expedition conducted by Ralph Glidden for the Museum of the American Indian has yielded important archeological results.

The Southwest.—Neil M. Judd, curator of American archeology in the U. S. National Museum, continued his investigations among the prehistoric ruins of western Utah, with special reference to certain caves near Kanab, Kane County. House remains found in these caverns are similar to others found farther north with the exception that sandstone blocks take the place of the adobe masonry so common to the region north and west of the Rio Colorado. Sandstone slabs, placed on edge, frequently occur at the base of walls; upright posts, bound with willows and plastered with mud, formed the walls of many of these ancient houses. Larger posts supported the heavy roof. The season's observations add to previous investigations and tend to show that, going from north to south in western Utah, the prehistoric dwellings increase in durability and size and are brought closer and closer together, to

form compact communities. Examination of potsherds likewise discloses an advance in technique and number of decorated specimens as one nears the Rio Colorado. Antiquities, both major and minor, tend to connect the prehistoric inhabitants of western Utah more and more closely with the ancient Pueblos south and east of the Colorado River.

Dr. Hough carried on field work in archeology and ethnology on the White Mountain Apache Reservation in Arizona during May and June. He observed that the time is almost ripe for collection of intimate data on folklore and customs, as the Apache are losing much of their reticence on matters of superstitious import. A considerable collection of skeletons and artifacts was secured from a ruin west of Cibicue.

The results of explorations in New Mexico appeared under the title "Exploration of a Pit House Village at Luna, New Mexico" (*Proc. U. S. Nat. Mus.*, lv., 409). An important accession to the anthropological collections of the U. S. National Museum was the human skeletal material from Hawikuh, N. M., gathered during the last two field seasons (1917-18) by F. W. Hodge and presented to the National Museum by the Museum of the American Indian of New York City. The collection comprises 132 complete skeletons and 49 separate skulls and other bones.

During the year the Bureau of American Ethnology in coöperation with the National Parks Service has excavated and repaired a large cliff house on the Mesa Verde National Park, Colorado, known as Square Tower House. This hitherto almost inaccessible but highly picturesque ruin will be an additional attraction to visitors, being unique in having the tallest masonry on the Park and two ceremonial rooms with half their prehistoric roofs still intact. A discovery of great scientific importance was made among the cedars on the top of the Mesa Verde. Here was brought to light by excavation an ancient room belonging to the type inhabited by the ancestors of the cliff dwellers when they came to the Mesa and before they went down into the caves and constructed the building

for which the Mesa Verde is justly famous.

The activities of the Museum of the American Indian, New York, in the Southwest include an expedition to the Yuma, Cocopah, White Mountain Apache, and San Carlos Apache, conducted by E. H. Davis, and an expedition to the Havasupai of Arizona, conducted by F. W. Hodge.

During the summer of 1919 the University of Arizona offered for the first time a field course among the prehistoric cliff dwellings and pueblos. Opportunity was also afforded to study the Navaho, Paiute, and Hopi Indians in their native habitats. The course was in charge of Prof. Byron Cummings.

The University of Texas and the Smithsonian Institution were jointly engaged during 1919 in an archaeological survey of Texas. The survey shows that the state may be divided into three areas based upon types of Indian culture: (1) eastern region, lying east of meridian 96°, with mounds of the Mississippi Valley type, polished-stone implements, and pottery; (2) central region, with mounds of a kitchen-midden type; (3) western region, the Pecos Valley and onward, with evidence of Pueblo influence.

Ohio.—H. C. Shetrone, of the Museum of the Ohio Archeological and Historical Society, has prepared a useful handbook for those who frequent that important museum. Four chapters deal with the Indians of the historic period. The final chapters are devoted to prehistoric Ohio: "Distribution and Character of the Mounds," "Fort Ancient Culture," "Hopewell Culture," "Minor Culture Groups," and "Questions of Origin and Race." *The Indian of Ohio* is the title of the Handbook, which contains 248 pages and is well illustrated.

Southern States, Cuba, and West Indies.—Clarence B. Moore visited sites on the western coast of Florida south of Key Marco making a collection of shell implements for the Museum of the American Indian. The same Museum sent an expedition in charge of M. R. Harrington down the Tennessee River from Knoxville to Chattanooga, and also one to Cuba and to the Lesser Antilles.

New York and New England.—George H. Pepper and F. H. Saville, for the Museum of the American Indian, have explored the shell heaps adjacent to Long Island Sound and have done archeological work at Easthampton, L. I. In the region of New York City, also in Jefferson and Cayuga Counties, N. Y., Alanson B. Skinner has done field work for the same Museum. A paper by Skinner on *Exploration of Aboriginal Sites at Throgs Neck and Clasons Point, New York City*, has just made its appearance (*Contr. Mus. Am. Ind.*, v, No. 4, 1919).

During the summer W. K. Moorehead of the department of archeology of Andover conducted an expedition from the source of the Connecticut to Springfield. The sites were mapped and excavated, and a cemetery was found at Deerfield, Mass. Pottery of apparently early Algonkian type was discovered at East Barnett. Farms in the middle and lower Connecticut Valley are now chiefly owned by foreigners. Their tobacco and onion fields extend back from the river, and where Indian sites occur, it is extremely difficult to secure permission to make observations. Notwithstanding adverse circumstances, quite a number of the important sites were located and an attempt to excavate these will be made later.

BIBLIOGRAPHY

BARRETT, S. A., and HAWKES, E. W.—“The Katz Creek Mound Group (Wisconsin).” (*Bull. Public Museum, Milwaukee*, iii, No. 1, 1919.)

BARTON, R. F.—*Ifugao Law*. (*Univ. of Cal. Publ. in Am. Archaeol. and Ethnol.*, xv, No. 1, 1919.)
 COPE, Leona.—“Calendars of the Indians North of Mexico.” (*Ibid.*, xvi, 1919.)
 CURTIN, Jeremiah, and HEWITT, J. N. B.—“Seneca Fiction, Legends and Myths.” (*Bur. Am. Ethnol.*, 32d Ann. Rept., 1918.)
 FISHER, R. A.—“The Causes of Human Variability.” (*Eugenics Rev.*, x, 213.)
 GANN, Thomas W. F.—“The Maya Indians of Southern Yucatan and Northern British Honduras.” (*Bur. Am. Ethnol.*, Bull. 64, 1918.)
 GODDARD, P. E.—“Myths and Tales of the White Mountain Apache.” (*Anthrop. Papers, Am. Mus. Nat. Hist.*, xxiv, Pt. II, 87.)
 KIDDER, A. V., and GUERNSEY, S. J.—“Archaeological Explorations in Northeastern Arizona.” (*Bur. Am. Ethnol.*, Bull. 65, 1919.)
 LAUFER, B.—“Sino-Iranica, Chinese Contributions to the History of Civilization in Ancient Iran, with Special Reference to the History of Cultivated Plants and Products.” (*Anthrop. Series, Field Museum*, xv, No. 3, 1919.)
 LOWIE, R. H.—“Myths and Traditions of the Crow Indians.” (*Anthrop. Papers Am. Mus. Nat. Hist.*, xxv, Pt. I, 1.)
 MEANS, Philip A.—“Distribution and Use of Slings in pre-Columbian America.” (*Proc. U. S. Nat. Mus.*, lv, 317.)
 MORRIS, Earl H.—“The Aztec Ruin.” (*Anthrop. Papers Am. Mus. Nat. Hist.*, xxvi, Pt. I, 1.)
 NICOLAI, G. F.—*The Biology of War*. Tr. from the German by Constance A., and Julian Grande. (N. Y., Century, 1918.)
 SPECK, Frank G.—“The Functions of Wampum Among the Eastern Algonkian.” (*Mem. Am. Anthrop. Assoc.*, vi, No. 1, 1.)
 WALTER, Herbert Eugene.—*The Human Skeleton: An Interpretation*. (New York, Macmillan, 1918.)
 WISSLER, Clark.—“Archæology of the Polar Eskimo.” (*Anthrop. Papers Am. Mus. Nat. Hist.*, xxii, Pt. III, 105.)
 WOODSON, Carter G.—*A Century of Negro Migration*. (Washington, privately printed, 1918.)

SOCIOLOGY AND STATISTICS

HERBERT N. SHENTON

Social Population.—An excellent historical background for the study of the growth of the Negro element in the population is furnished in *American Negro Slavery*—by U. B. Philips (Appleton, 1918). Although this work is primarily historical, it gives a detailed discussion of the slave trade as a world movement and gives a chronicle of the extension of the “Black Belt” in the South. It is also of sociological interest because it traces geographically the areas in which the soil was exhausted by in-

efficient slave labor and the consequent anti-slavery sentiment in the older plantation areas. A detailed source book for students who desire material for the statistical study of the Negro population has been published by the Bureau of the Census. John Cummings, the statistician directing the work, has compiled from past censuses valuable comparative data, which have been published under the title *Negro Population, 1790–1915*. All the material in previous special bulletins on Negro population

is included, and in addition population increases and percentage of increase in total population are shown by counties. Statistics of the sub-classes of the population and of farm tenants are also shown by states and counties. Detailed agricultural statistics make possible extended land-tenure studies.

The third special census of *Marriage and Divorce*, covering the period 1906-1916, has also been published by the Bureau of the Census. The two previous bulletins covered 20-year periods. The decision to tabulate statistics of marriage and divorce for a less extended period adds considerably to their value. The second annual census of the insane, feeble-minded, epileptics, and inebriates in the United States was taken in January, 1918, and published in *Mental Hygiene* for January, 1919. The results, though summary, provided annual comparisons of ratios of defective classes, and will provide a much needed supplement to the infrequent reports of the Federal Census Bureau (see also XIV, *Mental Hygiene*). The rural population and its socialization were discussed at the first National Country Life Conference in January; the proceedings are reported in a valuable volume published by the National Country Life Association (see also XVI, *Agriculture*).

Social Psychology.—*Essentials of Social Psychology* by Emory S. Bogardus (Univ. of Southern California Press, Los Angeles, 1918) groups problems of social psychology as follows: psychological bases of social psychology, social characteristics of the individual, imitation, psychology of the group, invention and leadership, social control and progress. The author's aim is to classify the problems of social psychology so as to constitute a systematic elementary treatment of the subject and illustrate a method (1) of studying the psychological basis of society and (2) the psychic aspects of group phenomena as manifested in social types and functions, crowds, assemblies, conflicts, coöperation, group loyalty, invention, leadership, and public opinion. The same author has published a study of Americanization. *Morale and Its Enemies* by W. E.

Hocking (New Haven, Yale Univ. Press, 1918), is a treatment of morale, "the practical virtue of the will to war," which is a valuable addition to material concerning the social will. The instinctive, emotional, and rational bases of morale are analyzed and their application to the Great War is traced. Effects of discipline, fear, and the stress of war upon these volitional factors are also traced in the study.

Social Reconstruction.—*Democracy in Reconstruction*, a symposium edited by Cleveland and Schaefer (Houghton, Mifflin, 1918), is an eclectic summary of the problems of the present-day democracy. The fundamental ideas of American democracy and their special relation to land policy and frontier life are interestingly summarized in the first chapter by Schaefer. The other articles of particular sociological interest are to be found in the sections on "Ideas and Institutions of Democracy," "After-War Social Problems," and "After-War Labor Problems." "Democracy and the Family" is treated by A. S. Todd; "The Democratization of Institutions for Social Service" by E. C. Hayes; and "The Social Significance of the Present Opposition of Capital and Labor" is discussed by Wm. F. Ogburn.

Social Theory.—A digest and critical analysis of the theories of social progress from Comte to date is given in *Theories of Social Progress* by Arthur J. Todd (Macmillan, 1918). The author's six principal propositions are: (1) social progress is theoretically possible; (2) it is not necessary or invariable or inherent in the nature of things; (3) it is a term which needs rigid definition; (4) objective tests of progress must be a part of the ultimate purpose of a science of society; (5) social progress is complex and cannot be interpreted in terms of any one set of factors; (6) if humanity is to progress it will be through discovering and utilizing new types of education.

Social Institutions.—An elaborate investigation of American family life in its successive historical phases is completed by the appearance of a third volume of *A Social History of the American Family from Colonial*

Times to the Present by Arthur W. Calhoun (Cleveland, A. H. Clark & Co., 1918). Emphasis is placed on the effect of race problems in the South on family life and upon the effects of changes in industrial life upon the status of woman and the marriage relation. Marriage, divorce, and the family are treated as social institutions, and miscegenation and prostitution are treated as abnormal or pathological social phenomena. The material on the effectiveness of legal institutions is greatly enriched by the publication of "Justice and the Poor" by Reginald Heber Smith (Carnegie Foundation Bull. 13). This is a systematic study of the administration of justice in America. After a thoroughgoing discussion of the defects which lead to the denial of justice to the poor, the remedial agents are classified and their work evaluated. The work of legal aid societies is also quantitatively analyzed. *Folk Lore in the Old Testament* by Sir J. A. Fraser (London, Macmillan, 1918), in three volumes; is an exhaustive catalogue of the folklore contained in Old Testament literature and a discussion of the characteristics of this folklore indicating survivals in Hebrew national life of more ancient habits and customs of the Hebrew tribes.

Statistics.—*Vital Statistics*, by G. C. Whipple (New York, Wiley) is an excellent manual of the methodology of demography to the advanced student of public-health problems. It should be of great service in making available the best statistical methods in general use in this field. For those interested in general population studies it will be of value. For the trained statistician in other fields of social work its contribution is far less, and as a textbook for the beginning student its worth is small.

Mortality Statistics of Insured Wage Earners and their Families, by Louis I. Dublin (Metropolitan Life Insurance Co.), is a clear analysis of the large mass of data gathered from the records of the industrial department of the Metropolitan Life over a considerable number of years. It deals in a comprehensive manner with the whole field of mortality among the wage-earning class, and should be

of great value to any student of public-health problems.

Introduction to Statistical Methods by Secrist (Macmillan, 1917), as the title implies, is a treatment of elementary statistical principles, especially tabulation, graphic presentation, averages, index numbers, and correlation. It is especially designed as an introduction to business statistics. Another elementary text which treats systematically of the fundamentals of the subject and as far as such treatment can be given with limited use of higher mathematics is *Statistics* by Bailey and Cummings (McClurg, 1917).

The Human Machine by Frederick S. Lee (Longmans, 1918) summarizes valuable war experience in the study of industrial operation. It contains scientific studies of the relation of conditions of work to fatigue, of fatigue to output, of night work and fatigue, fatigue in industrial accidents, and comparisons of women with men in regard to these characteristics.

Vol. I, No. 1, of the *Review of Economics Statistics* appeared in January, 1919. This is a new publication of the Harvard Committee on Economic Research with Warren M. Persons as director. It is a quarterly with monthly supplements. Its object is to use higher mathematical statistics in the verification and interpretation of the mass of statistical data that is gathered by Government agents. (See also *Economics*, *infra*.)

The retail price data gathered by the U. S. Food Administration has for the first time been published in an article unofficially prepared by Dr. Raymond B. Pearl and Magdalen H. Burger, published in the quarterly publication of the American Statistical Association for September, 1919. Further statistical material, which will be of particular value in checking and extending the results of statistical studies based on the series of price bulletins issued by the Department of Labor, is found in the Price Bulletin Series of the War Industries Board, Bull. 1 to 57, edited by Wesley C. Mitchell. These bulletins contain comparisons on international prices and detailed investigations of the prices of individual commodities in the United States.

The second "Statistics of Income" report of the Treasury Department, for the year 1917, was released during the year. Similar reports will be issued annually; they will contain information economic in character but of most real importance for sociologists, especially because the report includes tabulations of personal income of \$1,000 and over.

The American Statistical Association in coöperation with the American Economic Association has created

a Joint Committee on Census. The meetings of the Statistical Association in December, 1918, were devoted to a discussion of this subject and that of coördination of Government statistics. Efforts are being made to assist the Bureau of the Census in making the Fourteenth Census, which will be taken in 1920 at least in some ways an improvement on any previous census. The primary alterations resulting will be in change of questionnaire and instructions to enumerators.

ECONOMICS

WESLEY C. MITCHELL

Economic Theory.—Irving Fisher began his presidential address to the American Economic Association in December, 1918, by saying: "Of the many effects which the war has exerted on the minds of men, one of the most notable is the keener desire which we all now feel to be of genuine public service." A review of the year's work in economics proves the justice of this remark. The economists seem more concerned than formerly with the practical bearings of their work. Thus the younger critics of orthodox theory, who were given an opportunity to present their case at the annual meeting of the Economic Association, stressed the demand for a theory that bears on current social problems. J. M. Clark declared that economic theory in the hoped-for era of social readjustment should be "actively relevant to the issues of its time," and that speculations concerning value "must become a subordinate part of social economics." Similarly, W. H. Hamilton recommended "the institutional approach to economic theory" on the ground that "economic theory should be relevant to the modern problem of control." Even W. F. Ogburn's championing of Freudian psychology as an aid in interpreting economic behavior gets its significance largely from the methods of controlling behavior toward which it points. (For these papers see *Am. Econ. Rev. Suppl.*, March, 1919.)

The older men show the same practical bent. In the one set treatise upon economics published in 1919, T. N. Carver says: "It is the purpose of this book to examine

the economic foundations of our national strength and to point out some of the more direct methods of improvement, to the end that our democratic nation, and all democratic nations, may grow prosperous and great in all the elements of national greatness" (*Principles of Political Economy*, Ginn). A similar aim dominates L. G. McPherson's exposition of "the sequence of cause and effect in the determination of values" (*The Flow of Value*, Century). Even Thorstein Veblen, in tracing the growth of a discrepancy between the principles on which business is run and the effects which industry produces, shows less of the aloofness characteristic of his work in earlier years (*The Vested Interests and the State of the Industrial Arts*, Huebsch).

Z. C. Dickinson has discussed "The Relations of Recent Psychological Developments to Economic Theory" from a conservative viewpoint (*Quart. Jour. Econ.*, May, 1919); H. J. Davenport has shown how the difference between competitive acquisition and social production bears upon the theory of wages (*ibid.*, Feb., 1919); E. G. Nourse has restated the market concept of market price, and Julius Davidson has argued that the law of diminishing returns is a deduction from the laws of probability and therefore universally valid (*ibid.*, Aug., 1919). These seem to be the chief theoretical articles of the year, a slender output in comparison with the mass of articles on practical problems arising from the war.

Prices.—F. W. Taussig (*ibid.*, May, 1919), has given a brief account of

the work done by the Price-Fixing Committee, (*A. Y. B.*, 1918, p. 50), of which he was a member. The Committee relied mainly upon cost data collected by the Federal Trade Commission. These data always showed that the costs of production in different establishments covered a considerable range. Within this range the Committee usually fixed the price at what they called the "bulk line" point, that is, the point which would repay the cost incurred in producing the most expensive increment of the supply regarded as necessary to secure military efficiency and civilian morale. Besides this general statement, several careful studies have appeared on the price control exercised over particular articles, notably sugar (J. Bernhardt, *ibid.*, Aug.) and paper (L. H. Haney, *Am. Econ. Rev.*, March). A systematic record of Government control over prices at large has been prepared by Paul W. Garrett. This document is part of "The History of Prices during the War," compiled by the Price Section of the War Industries Board and published in a series of 57 bulletins (Government Printing Office). One interesting result of this elaborate investigation is that the new index number comprising 1,366 commodities confirms confidence in the corresponding index made by the Bureau of Labor Statistics. The maximum difference between the two series in any month of the six years, 1913-18, is less than three per cent.

Irving Fisher's plan for "stabilizing the dollar" has attracted wider attention, since it promises a method of diminishing the violence of future price fluctuations. Besides the debate upon this subject at the meeting of the Economic Association (*Am. Econ. Rev., Suppl.*, March, 1919), there have been criticisms by G. H. Knibbs (*ibid.*, June) and E. T. Peters (*Quart. Jour. Econ.*, Aug., 1919), and a more ample statement and defense of the plan by its author (*Stabilizing the Dollar*, Macmillan).

Problems of Reconstruction.—The technical journals present so many excellent studies of reconstruction that it is impossible to do more than to indicate by way of samples how wide the field of interest is. Raphael

Zon has dealt with the way to utilize natural resources (*Jour. Pol. Econ.*, April, 1919); E. G. Nourse with agricultural policy (*ibid.*, June and July); C. N. Hitchcock with housing (*ibid.*, April); J. D. Magee, F. G. Dixon, and A. S. Dewing with the railroads (*ibid.*, May, *Quart. Jour. Econ.*, Aug.; and *Am. Econ. Rev.*, March and June); David Friday with the maintenance of productive output (*Jour. Pol. Econ.*, Feb.); Boris Emmet, G. J. Eberle, and F. S. Crum with labor turnover (*ibid.*; *Am. Econ. Rev.*, March; *Quart. Pub. Am. Statist. Assoc.*, June); L. B. Wehle, H. H. Farquhar, P. H. Douglas, and A. M. Bing with various aspects of "industrial relations" (*Quart. Jour. Econ.*, February and May; *Jour. Pol. Econ.*, Econ., March to July); J. H. Williams and L. R. Gottlieb with international financial relations (*Quart. Jour. Econ.*, May); Homer Hoyt with industrial combinations and the standardizing of production (*Jour. Pol. Econ.*, Feb.); etc. Two valuable collections of papers of this general character have been made in the *Annals of the American Academy of Political and Social Science* (March and May).

Business Cycles.—Ellsworth Huntington, a geographer, has propounded a new theory concerning the fundamental cause of business cycles. Like W. S. Jevons and H. L. Moore, he holds the weather responsible for alterations of activity and depression, but in his version the weather gets its importance less from its effect upon crops than from its effect upon the morbidity and death rates (*World Power and Evolution*, Yale Univ. Press). The chief event of the year in this field, however, is the founding of the *Review of Economic Statistics* by the Harvard University Committee on Economic Research. The first two issues contain an elaborate statistical analysis of various business barometers by W. M. Persons. This work makes a distinct advance in the quantitative study of business cycles. The *Review* is particularly interesting because it represents substantially the first experiment in the endowment of economic research in this country. (See also *Sociology and Statistics*, *supra*.)

XXVII. RELIGION AND RELIGIOUS ORGANIZATIONS

CHRISTIAN CHURCHES

H. K. CARROLL

BAPTIST

Northern Baptist Convention.—The Northern Baptist Convention, held in May, 1919, in Denver, Col., heard reports of importance concerning the denominational drive for funds and also took action defining its relation to certain union movements. Report was made on behalf of what has been known as the Laymen's Movement, which aims to raise the Church budgets for eight of the boards, the total of the apportionments being much larger than usual, and also to raise a complementary sum of a million dollars. Although the million dollars was not quite secured, the report regarded the campaign as successful and as beneficial to the denomination. The Committee reported a five-year budget plan for home and foreign missions and for educational and other denominational purposes, aggregating in round numbers five millions of dollars a year.

Perhaps the most important action taken by the Convention from a denominational point of view was the adoption of a report proposing the formation of a delegated Assembly composed of members of all bodies of the denomination. The report was submitted by a committee which declared that the rising tide of intelligence and of democratic feeling in the Baptist denomination demanded real legislative assemblies for the boards of the various societies, each dealing with a special phase of the work, and that the annual meetings of the societies and of the Northern Baptist Convention, though they possess legislative power, are too large for deliberate, painstaking framing of plans. It proposed to have a House of Representatives or Board of Finance and Promotion large enough to be thor-

oughly representative and small enough to be effectively deliberate, and to assign to that body the duty of considering the work of the denomination in all its aspects, defining a policy for each ensuing year and approving the budget for its execution. The report called for the adoption of a combined budget and for a single coördinating agency representing the Convention and a coördinated organization disseminating information concerning the work of the denominational bodies and raising money for all of them.

The Northern Baptist Convention approved the Interchurch World Movement (see *infra*) with certain limitations and authorized the Baptist organization to coöperate with it. The Convention also adopted statements concerning the Faith and Order Movement of the Protestant Episcopal Church (see *infra*), in which it had been invited to participate, and also concerning the Movement for the Union of Evangelical Churches inaugurated by the Presbyterian General Assembly in 1918 (see *infra*). The Convention took the position that organic union with other denominations is not possible to Baptists, for the reason that

the Baptist democracy is a collection of independent denominational Churches. Not one of these Churches recognizes any ecclesiastical authority superior to itself. They are grouped in associations, state conventions, and a National Convention, but none of these groups has any control of a local Church beyond that which lies in common faith, practice, and service. The denomination, in so far as it has unity, is a federation of independent democracies.

There is no centralized body, it continues, that could deliver the Baptist Churches to any merger or corporate unity. "If Baptist Churches do not

have unity among themselves, they obviously cannot have organic unity with other denominations." In consequence of this action, the Baptist delegates to the *Ad Interim* Committee of the Movement for the Union of Evangelical Churches withdrew.

Southern Baptist Convention.—The Southern Baptist Convention, which has nearly twice as many members as the Northern Baptist Convention, is conservative in its attitude toward all matters of interdenominational coöperation and union. It refused at its meeting in May to be associated with the Interchurch World Movement but laid out a large programme for itself in raising \$75,000,000 for the proper equipment of its various boards. It refused also to negotiate with any other body for organic union.

CONGREGATIONAL

National Council of Congregational Churches.—The biennial National Council of the Congregational Churches in the United States was held in October in Grand Rapids, Mich. President Henry C. King of Oberlin College was elected moderator, and Dr. Hubert C. Herring, secretary. The Council adopted resolutions approving the Williams resolution pending in Congress to authorize the President to employ force for the maintenance of peace in Armenia until its affairs can be settled, and approving the Treaty of Peace and the Covenant of the League of Nations without change. It also adopted a series of resolutions taking an advance position on social service. In a series of resolutions on the industrial situation the Council declared for collective bargaining which it carefully defined. The Council determined in favor of close coöperation with the Interchurch World Movement and adopted plans for a forward movement of the Congregational Churches involving the raising of \$50,000,000 for its missions and benevolences on a five-year plan. To assist in securing more adequate salaries for ministers and to improve their status a committee of 15 laymen was appointed. With reference to

negotiations that have been in progress between certain Congregational ministers and the Episcopal Church respecting Episcopal ordination for Congregational ministers (*A. Y. B.*, 1918, p. 740), the Council appointed a committee to deal with the matter (see *Protestant Episcopal*, *infra*). In celebration of the three-hundredth anniversary of the arrival of the *May Flower* in 1620, an International Congregational Council is to be held in Boston, beginning July 6, 1920.

DISCIPLES OF CHRIST

International Convention.—The annual International Convention of the Disciples of Christ was held in Cincinnati in October. The missionary and benevolent organizations reported a total income for the year of \$2,521,387. Six societies, the American Christian Missionary, Christian Woman's Board of Foreign Missions, Foreign Christian Missionary, National Benevolent Association, Board of Church Extension, and Board of Ministerial Relief, voted to consolidate and form a new organization to be known as the United Christian Missionary Society. The Convention recommended the increasing of the salaries of ministers as follows: All salaries under \$1,500 per year, 25 per cent.; all salaries between \$1,500 and \$2,000; 20 per cent.; all salaries between \$2,000 and \$3,000, 15 per cent.; and all salaries above \$3,000, 10 per cent. The Convention closed with a session in favor of Christian unity.

LUTHERAN

United Lutheran Church of America.—The United Lutheran Church of America, which was created in November, 1918, by the union of three general Lutheran bodies, the General Synod, the General Council, and the United Synod of the South (*A. Y. B.*, 1917, p. 686; 1918, p. 735), has proceeded since the merger, according to the secretary of the United Church, in perfect harmony and with a considerable access of vigor in the prosecution of its work. The boards of missions and other benevolent organizations carried on by the three bodies before the merger have been con-

solidated without delay and without opposition, and a considerable saving in expense has resulted therefrom. There has been as yet no consolidation of the district synods, of which there are 45 in the United States and Canada and which overlap each other in many cases, but preparations are being made for a reduction in the number of these synods by merging and recasting the lines of division. The secretary of the United Church states that no faction has developed in the Church, that its work has proceeded with smoothness and celerity, and that the result of the consolidation has been to infuse new life in all the 45 district synods, an expansion of the field of vision, a deepening sense of responsibility for service, a more comprehensive and liberal planning, and a spirit of readiness for greater undertakings.

National Lutheran Commission.—The National Lutheran Commission was a body formed during the war of representatives of the various Lutheran bodies to carry on war work abroad and in this country (*A. Y. B.*, 1918, p. 742). It has continued as an effective organization since the close of the war, turning its attention chiefly to the work of reconstruction in several of the Lutheran countries of Europe where destruction of Lutheran churches and impoverishment of Lutheran populations has called most urgently for outside aid. Its work in this country during the year has been to make new surveys in industrial centers and to establish religious work in a number of them. In order to bring about better understanding between the bodies coöperating in the Commission, representatives appointed by their respective presidents held a meeting in Chicago in March, 1919. The result was declared to be quite satisfactory and to have an important bearing upon the future of the Lutheran Church in the United States. This Council took up the question of carrying on the missionary work which the Lutheran missionary societies of Germany were forced to abandon during the war, and in July the Council held a meeting with the officers of the various boards of foreign missions in this country to determine what should be done. The

Council was asked to represent these various Lutheran bodies before the Government in any communications that might have to be made to the United States and to take such action as might be possible under the Treaty of Peace, which provides, that "the former German missions shall, by the Governments concerned, be turned over to boards of trustees of the same faith as the missions involved, in order to ensure that these mission properties may be used for missionary purposes in the future." The Council has been much concerned with reconstruction work in Europe, and a commission from the Lutheran Churches of France and Alsace came to this country to represent conditions in their respective fields of labor. Surveys have been made in Finland and in the former Baltic Provinces and Poland, and relief has been sent abroad. The office of the Council is at 437 Fifth Avenue, New York, and the secretary is Rev. Lauritz Larsen.

METHODIST

Methodist Unification.—The attempt to bring together the two chief Methodist bodies which were separated in 1844, known as the Methodist Episcopal Church and the Methodist Episcopal Church, South, is still in the stage of negotiation. The General Conference of the Southern Church in 1918 declared itself strongly in favor of reunion (*A. Y. B.*, 1918, p. 736), there being only a few votes cast against it, but it reaffirmed the deliverance of the previous General Conference of 1914 which pronounced in favor of a separate Church for colored membership. This and the form of the reorganization desired by the Southern men seemed to constitute the main obstacles to the achievement of the result desired. The Southern General Conference having named a committee of 25 to meet the committee of the Northern Church, a joint session was held in Cleveland in July. Bishop McDowell representing the Northern Church presented a statement defining their position under the action of General Conference of 1916 (*A. Y. B.*, 1916, p. 718). He said they were in favor of unification and of unification by

reorganization, and that the two main questions to be settled were those of the regional conferences and of the position of the colored man. He stated that if the Southern committee were ready to accept the plan they would be satisfied to have the number of white regional conferences fixed at six. As to the Negro's position, inasmuch as the original proposition had been put before the Southern Church, they would await such proposal as the Southern Church might make. The outcome was the appointment of a joint committee of seven from each body to consider and report upon the question of regional conferences. The committee divided and presented two reports. The Southern representatives desired, besides the six white regional conferences, a regional conference of colored people and several regional conferences for foreign mission fields. Although the reports were recommended several times, the position of the representatives of the respective commissions was not substantially changed. It was explained that the attitude of the Southern Church toward the Negro was due not at all to the fact of his race, but to his backwardness, and for that reason the Church, South, desired for the present a separate regional conference of Negroes which should eventually become a separate Church. After having been in session several days, it seemed that no progress could be made, and the result was the appointment of a committee of seven from each of the commissions to consider the whole matter of regional conferences and the relation of the colored Methodists for report to a future meeting of the joint commission, which should be arranged to be held before the meeting of General Conference of the Methodist Episcopal Church in May, 1920. Thus little or no progress has been made towards bringing about unification of the two great Methodist bodies in the United States.

Methodist Missions.—In celebration of the centenary of the Methodist Missionary Society, which was organized in 1819 and which until 1844 represented the undivided Methodist Episcopal Church, the Meth-

odist Episcopal Church and the Methodist Episcopal Church, South, made arrangements for a joint drive for the largest amount of money ever asked for by any Church. The plans provided first for a survey of the various missions in foreign and home fields, with an estimate of the amount of money needed for additional missionaries, evangelistic, medical, educational, etc., the number and character of new buildings with equipment required, etc. It proposed to organize in every local church a commission or council to canvass the entire membership for subscriptions to the centenary fund; for enlistment of those willing to give their lives to the service of the Church in some one of its departments; for listing of those willing to give tithes; and for enrollment of those willing to engage in intercession for the progress of the work of God. The original amount asked for by the Methodist Episcopal Church for its home and foreign missions was \$80,000,000. This was afterwards increased by adding the amount needed for war work and for other purposes until the total reached about \$105,000,000. The Methodist Episcopal Church, South, had a like organization and called for \$45,000,000 for its home and foreign missions. There was a joint commission representing both bodies. Among the features of the centenary celebration there was a great missionary world exhibit at Columbus, Ohio, in mid-summer. Millions of Methodists attended to learn what their Church was doing and how it was doing it in the various lands of the world. A call was made for subscriptions on a five-year plan, one-fifth to be paid each year. The Methodist Episcopal Church reported in July subscriptions of more than \$113,000,000 and indicated that more would come in in the fall. The Methodist Episcopal Church, South, had at the same time received subscriptions of about \$54,000,000, with indications of much more to come.

Status of Women in the Southern Church.—The General Conference of the Methodist Episcopal Church, South, in 1918 submitted to the annual conferences the question whether women should be admitted to equal

laity rights with men in the courts and boards of the Church (A. Y. B., 1918, p. 737). The annual conferences by overwhelming vote have adopted the constitutional change so that hereafter women may sit in all the conferences of the Church.

Methodist Reconstruction Programme.—The Methodist Episcopal Church has the following programme of relief, reconstruction, and conservation in Europe: first, assistance in the form of food, clothing, and temporary homes for the needy in the devastated areas of France and northern Italy; second, orphanages and industrial schools; third, institutional church and social service centers; fourth, extension of aid to all worthy evangelical agencies, both direct and through the Federal Council of Churches of Christ in America. It is planned to work in France, Italy, Yugoslavia, Rumania, Russia, Spain, Bulgaria, Central Europe, and Scandinavia. At the end of October 56 special workers were engaged in relief work in France, Italy, and Central Europe. Four orphanages are in operation, caring for 300 children; \$300,000 has been expended for relief work, and \$200,000 placed at the disposal of the French Protestant Churches for the strengthening of their work. A farm of 160 acres has been purchased at Charvieu, near Lyons, France, and is under the direction of a graduate of one of America's best agricultural schools. A home is being provided here for 200 boys, who will be given in addition a thorough general education and both practical and scientific instruction in agriculture. The Methodist Episcopal Church has pledged \$25,000,000 to be expended during the next five years for reconstruction abroad and at home. Most of this fund available for foreign fields is intended for Europe.

PRESBYTERIAN

Northern General Assembly.—The General Assembly of the Presbyterian Church in the United States of America was held in St. Louis in May. John Willis Baer, a ruling elder of the Los Angeles Presbytery, was elected moderator, the first layman ever to occupy that position.

Report was made of the New Era Movement (A. Y. B., 1918, p. 739), which unites the various benevolent boards in an appeal to the churches for the necessary funds for their work, showing that the expenses had amounted only to \$205,019, the result being that 87.5 per cent. of the total budget, amounting to \$11,500,000, had been pledged at the end of the fiscal year in April, 1919, making an increase of subscriptions over the regular budget, including the amount expended for war purposes, of about seven millions. The Assembly seemed well satisfied with the results of the new movement and gave it renewed authority to continue its work. The Southern General Assembly having intimated a desire to continue negotiations on the subject of the proposed Presbyterian federal union with a view to adopting a plan which the Southern body had itself prepared (see *infra*), the Northern Assembly sent a telegram to that body intimating its purpose to stand by the plan already agreed to and to decline negotiations for further revision of it (A. Y. B., 1917, p. 691).

The Northern General Assembly, while giving its approval to further coöperation with what is known as the Faith and Order Movement, instructed its representatives to confine themselves to such measures as maybe necessary to bring about the proposed world conference and not to take up questions of doctrine or order. The Assembly "approves the Interchurch World Movement but insists that money contributed by Presbyterian churches shall be expended by Presbyterian boards and agencies; that the movement shall include only evangelical Churches; and that no obligations on account of expenses shall be incurred without the approval of the Executive Commission of the Presbyterian Church."

There were three overtures in the Assembly on the subject of the eligibility of women to office and orders. Two asked that women have an equal place with men in the lay offices of the Church and also that they be eligible to ministerial orders; one other presbytery asked simply that they have equal privileges with the rest of the laity. The outcome

was the appointment by the General Assembly of a committee of three ministers and two elders to consider the whole matter and report to the next General Assembly. The necessity of some consideration of this question was set forth in the overtures, which referred to the granting of suffrage to women in many states and an equal place with laymen in many of the other denominations and indicated a growing demand of the women of the Presbyterian Church for larger opportunities in Church work.

Southern General Assembly.—The General Assembly of the Presbyterian Church in the United States (South) met in New Orleans in May. Rev. A. M. Frazer, D. D. was elected moderator. The subject of union occupied a considerable part of the time of the Assembly. Reports presented embraced not only the subject of organic union but that of federal union with other denominations of the Presbyterian and Reformed faith. The action of General Assembly on the latter question was a suggestion that further conferences be had with the representatives of other bodies with a view to substituting a plan of federal union drawn up by the Southern Church for that proposed by the other bodies. The report of the standing committee referred to the difference of opinion in the Southern Church on the subject of union, indicating that synods on the northern border were more anxious for union of some kind than synods in the farther South. In the end the Assembly decided to appoint a committee representing the several synods to confer on the subject of organic union with the Northern Presbyterian body (see *supra*).

United Presbyterian General Assembly.—The United Presbyterian General Assembly met in Monmouth, Ill., under the moderatorship of the Rev. J. P. McCrory. Provision was made for the appointment of delegates to the proposed Presbyterian federal union, to the plan of which the General Assembly had given its approval in 1918. The General Assembly has been in negotiation with the Associate Reformed Synod, South, for a union between these two bodies, and it is

considered quite probable that the negotiations will be brought to a successful conclusion.

Presbyterian Union Movements.—A plan of federal union approved by the Council of the Reformed Churches in the United States holding the Presbyterian system, as sent direct to the supreme judicatories of seven Churches, has been approved by three of them, namely, the General Assembly of the Presbyterian Church in the United States of America, the General Assembly of the United Presbyterian Church, and the General Synod of the Reformed Church in the United States. This plan in its essential features involves the administration by joint boards of such causes as foreign missions, home missions, education, etc.

There is a proposal for the union of the Welsh Presbyterian Church and the Presbyterian Church in the United States of America, and also of the union of the United Presbyterian Church and the Associate Reformed Synod, South, and negotiations are in progress for a union of the General Synod of the Reformed Church in the United States and of the General Assembly of the Presbyterian Church in the United States of America.

Relief Work of the Presbyterian New Era Movement.—The New Era Movement is concerned in the reconstruction of Protestant churches in war-devastated regions of Europe to the following extent. The Executive Commission of the Northern Presbyterian Church put into the Church financial budget for 1919 \$500,000 to be used for reconstruction among such churches holding the Reformed faith as seem to need it. The Board of Foreign Missions was appointed treasurer of this fund. The Board of Foreign Missions and the Board of Church Erection jointly with a committee of eight were charged with the administration of the fund. The General Assembly suggested that "the first concern in the administration of this fund should be the support of an able and adequate ministry for the Protestant peoples in the countries which have suffered by the war by supplementing in a reasonable proportion the local gifts," and gave

definite instructions that "there be no duplication of the work done by other relief organizations." It is expected that quite a proportion of the \$500,000 will be "turned over to a joint interdenominational fund to be administered by the United Protestant Committee for War Relief in France and Belgium, provided that the programme of this French Committee be approved by the Commission on Relations with France and Belgium of the Federal Council of the Churches of Christ in America, and provided that other Protestant denominations make similar unrestricted appropriations, through the same Committee, aggregating the sum of \$750,000." It was also further suggested "that consideration be given to our rebuilding of churches and chapels in the devastated area, giving to those in important centers better equipment and buildings than they had had heretofore." Further appropriation of the money has not yet been made.

PROTESTANT EPISCOPAL

Protestant Episcopal General Convention.—The Triennial General Convention of the Protestant Episcopal Church, held in Detroit in October, adopted some important legislation. The Convention continued discussion of the report of the commission on revision of the Book of Common Prayer which has been before prior General Conventions. Among the other subjects considered, were faith healing, anointing with oil, requiem communions and prayers for the dead, and reservation of the sacrament. For the first time in its history the House of Bishops held public sessions. A canon proposing to prohibit the remarriage of persons who have been divorced was introduced but was rejected. A concordat designed to bring about a closer unity of the Protestant Episcopal Church and other denominations for the spiritual welfare of the world was introduced and finally adopted. It proposes a change in the constitution of the Church, so as to allow the bishops to confer ordination on ministers of the Congregational and other denominations, provided the

denominations recommend the ministers for ordination. The proposition will go to the diocesan conventions for ratification. It is the outcome of unofficial negotiations between representatives of the Congregational and Protestant Episcopal Churches in Connecticut and Massachusetts (see *Congregational, supra*). It is the hope of those favoring such a change in the constitution of the Episcopal Church that, if adopted, it may remove the barrier to union caused by the attitude of the Anglican communion in support of the historic episcopacy. A proposition to change the constitution so as to allow women to be elected as members of the House of Deputies was defeated on the ground that women do not want this recognition. A Council has been created for the government of the administration of the Protestant Episcopal Church in the interims between the meetings of the General Convention. Bishop Thomas F. Gailor of Tennessee was elected President of the Council, which consists of bishops, priests, and laymen. It is to meet quarterly. A social programme was adopted for the church containing some provisions for the benefit of labor (see also XIV, *Social Work of the Churches*).

ROMAN CATHOLIC

Work of Knights of Columbus.—The Knights of Columbus received from the United War Work Campaign of 1918 (*A. Y. B.*, 1918, p. 744) about \$25,000,000. Its after-war work has taken a wide range, including a bureau in New York for placing returned soldiers in positions. It expended to June 30, 1919, for war work in this country about \$5,500,000; for work overseas, \$9,550,000; and for administration \$166,616. The order is to establish vocational schools for those who desire to use them. Small fees will be charged.

Convention of the Hierarchy.—At the suggestion of the Papal legate Cardinal Gibbons summoned the hierarchy of the United States to a meeting in Washington in September to consider plans to promote the faith in this country. A committee was created to promote studies of the

Holy See, home missions, foreign missions, social and charitable work, Catholic education, Catholic literature, legislation, etc.

Visit of Cardinal Mercier.—The visit to the United States of Désiré Joseph, Cardinal Mercier, Archbishop of Malines, Belgium, was not only a matter of international importance, but was one of great interest to the religious world, both Catholic and Protestant. At a conclave of archbishops and bishops of the United States, called by Cardinal Gibbons to meet in Washington, Cardinal Mercier was given a hearty reception. Protestants as well as Catholics were present on this occasion. The Cardinal was also heartily received by the General Convention of the Protestant Episcopal Church and spoke of the members of the Convention as brothers in Christ.

UNION AND COOPERATIVE MOVEMENTS

Movement for the Union of Evangelical Churches.—There are two distinct movements looking to the general union of Christian denominations,—that of the Protestant Episcopal Church begun in 1910, known as the Faith and Order Movement (*A. Y. B.*, 1910, p. 732, and subsequent issues), and the Movement for the union of Evangelical Churches in the United States, initiated by the Northern Presbyterian General Assembly of 1918 (*A. Y. B.*, 1918, p. 738). The conference called under Presbyterian auspices to organize the latter movement met in Philadelphia in December, 1918, and directed that an *Ad Interim* Committee be created on which the various denominations participating should have representation, the Committee to be charged with the duty of inviting all evangelical denominations to unite in the movement and to prepare plans of union for submission to a Council of bodies deciding to participate to be called not later than 1920. The *Ad Interim* Committee was organized with Dr. W. H. Roberts, Presbyterian, as chairman and Dr. Rufus W. Miller, Reformed Church in the United States, as secretary. It proceeded to appoint subcommittees, one

on plans of union and others on publicity, finance, etc. The Committee has had a number of meetings and accepted tentatively two or three plans of union to be presented to the Council for its consideration. Of the several plans to be reported, one will propose federal union of the character of that of the states in the Federal Government, allowing each denomination to continue to use its denominational name and machinery and methods of work, with a general council to have authority on matters of general concern and especially to have supervision over home and foreign missions and other benevolent causes. Among the bodies that have signified their intention of appointing delegates to the first General Council are the following: Presbyterian Church in the United States of America, United Presbyterian Church, Welsh Presbyterian Church, Congregational denomination, Northern Baptist Convention (delegates of this body withdrew after action of the Convention refusing to approve of the movement; see *Baptist, supra*), Christian Union, Disciples of Christ, Philadelphia Yearly Meeting of Friends, Armenian Apostolic Church, Methodist Episcopal Church, Primitive Methodist Church, African Methodist Episcopal Church, Protestant Episcopal Church, Reformed Episcopal Church, Reformed Church in the United States, American Christian Convention. If the Council when summoned accepts any one of the plans proposed after such amendment as it may deem proper, the plan so approved and adopted will be sent to the various denominations participating for action by their chief judicatories and to undergo the process through which constitutional changes must pass in the various denominations. Hence, even if union is decided upon, it probably cannot take place for some time to come.

World Conference on Faith and Order.—The Faith and Order Movement was begun by the General Convention of the Protestant Episcopal Church in 1910. The object was to see whether reunion on a large scale of those denominations that are orthodox and evangelical throughout the world can be brought about. Appeal was first

made to the various evangelical denominations in the United States, most of which agreed to appoint representatives to coöperate with the Commission on Faith and Order of the Protestant Episcopal Church. The war began before invitations could be extended through deputations to the various Churches of the Continent of Europe, but coöperation was secured, not only of a large number of denominations in the United States, but also of the Anglican Church and all its branches throughout the world. A statement issued on behalf of the Faith and Order Commission declares that now all the invitations have been issued that appears to be necessary or at present possible, and "well nigh universal acceptances" have been secured. In the spring of 1919 a deputation of the Protestant Episcopal Church sailed to Europe and the Near East in order to extend invitations to Churches that could not be reached during the European War. The deputation before sailing had unofficial assurances of the Patriarch and influential members of the Church of Russia and the cordial sympathy of several branches of the Orthodox Eastern Church and also of many influential Roman Catholics. In London the deputation met the Archbishop of Cyprus, and in Paris, the acting Patriarch of Constantinople, each of whom promised to call a special session of his synod to consider the official invitation and gave assurances that it would be accepted. The deputation also met in Paris a representative of the Serbian Church who promised his coöperation. In Athens the Metropolitan took the deputation to Mars Hill and read them Paul's sermon in Greek. The next day his synod formally accepted the invitation. The deputation was present in Constantinople at Easter and took part in the Easter services at the Cathedral. They met in Constantinople the Armenian Patriarch, who promised to transmit the invitation to the Catholics of his Church. At Sofia the acting Metropolitan assured them of the acceptance of the invitation as soon as the synod should be convened, and at Bucharest they received a similar assurance from the Metropolitan of

that Rumanian city. At Belgrade the synod of the Serbian Church showed the deputation many honors and accepted an invitation to take part in the World Conference. The deputation arrived at Rome on May 10, where they had a special audience with the Pope. It is stated that the Pope personally was kind, courteous, and genial, but that officially he told the deputation that the Roman Catholic Church could not accept the invitation, considering that submission to the Church of Rome is the only possible way of achieving the reunion of Christendom. The deputation then extended their journey to the various Churches in Europe, including Switzerland, France, Belgium, Holland, Denmark, Norway, Sweden, and two members of the deputation were appointed to visit the eastern Churches whose headquarters are in Antioch and Jerusalem.

With so many acceptances of the invitation in Europe, America, Australia, and elsewhere, the World Conference on Faith and Order will, it is not doubted, be held, although it is explained that the preparations to be made for it are expensive and will involve a considerable delay.

A meeting of 200 representatives of the 24 coöperating commissions appointed in the United States and Canada was called for Nov. 20 in New York City. Its object was to make plans for a preliminary conference, which is called for August, 1920, at The Hague, to arrange details of the proposed World Conference on Faith and Order.

Interchurch World Movement of North America.—The Interchurch World Movement of North America has for its main object the promotion of coöperation among the evangelical Protestant churches of the North American continent, the doing of many things in common which in the past all have done separately, and the consequent elimination of much duplicate effort. The Canadian part of the Movement, called the United National Campaign, works in close harmony with the Movement in the United States.

The Movement owes its inception to the initiative of the Executive Committee of the Board of Foreign Mis-

sions of the Presbyterian Church in the United States (South). That committee summoned representatives of home and foreign mission boards to a conference in New York in December, 1918, to discuss some scheme of coöperation among the Protestant churches of the United States. The result was the formation of the Inter-church World Movement, with a programme that emphasizes church co-operation as its object and expressly disclaims any idea of organic church union.

The Movement has received the formal endorsement of more than 70 denominational and interdenominational boards and agencies. The conduct of the Movement is vested in the hands of a general committee representative of the participating church bodies, detailed supervision being exercised by an executive committee. The general secretary is Dr. S. Earl Taylor, who served as executive secretary of Joint Centenary Committee of the Methodist Episcopal Church. The following are associated with him in active management of the Movement as associate general secretaries: Abram E. Cory, Miss Mabel Cratty, William E. Doughty, Mrs. H. H. Farmer, Fred B. Fisher, William Hiram Foulkes, Fred P. Haggard, W. B. Millar and J. Campbell White.

Broadly speaking, the plan of the Movement is one of survey and of education, first, to discover the whole task of the whole church, and second, to recommend the means for accomplishing it. For the first object a survey has been undertaken of religious conditions throughout the entire world, county by county in the United States and country by country abroad. When the survey is completed, the results obtained will be analyzed, tabulated, and budgeted in terms of men and money. The Protestant churches of this country will know exactly what should be their proper contribution towards America's share in the evangelization of the world and what it will cost in money and in human effort. The plan is that the budgets shall be coördinated and apportioned by mutual agreement among the churches, waste and duplication thus being eliminated.

RELIGIOUS ASSOCIATIONS

Young Men's Christian Association.—The International Committee of the Y. M. C. A. during the year steadily carried on its special task of encouraging, promoting, and supervising welfare work among men and boys, which programme it followed throughout the war, as before, since its incorporation on April 16, 1883. The International Committee is now composed of 115 representative business men, scattered throughout North America. Its general offices are at 347 Madison Avenue, New York. Its officers are as follows: Chairman, Alfred E. Marling; vice-chairmen, William Sloane, James W. Speers, William D. Murray, Abner Kingman, Lucian C. Warner; treasurer, B. H. Fancher; general secretary, John R. Mott.

The home work of the International Committee is divided into the following 11 departments: city, county, student, railroad, Army and Navy, colored, industrial, boys', physical, educational, and religious. The foreign work is under the direction of its own department; the European War and rehabilitation work comes under the immediate supervision of the Executive Committee and the National War Work Council (see *infra*). Under its general supervision are 2,076 Y. M. C. A.'s, with 5,076 paid officers, 72,779 directors and volunteer committee men, and 739,438 members. This is an increase of approximately 20,000 members since the United States entered the Great War. Of its members, 165,442 were in Army or Navy service in 1919. Of the total membership, 181,656 are boys. Its activities fall under many heads. Its social activities during the year included 61,778 socials and entertainments. Employment departments show that situations were secured for 82,311 men, an increase of 9.2 per cent. over the preceding year. In physical work 262,246 men and boys were under trained directors in regular gymnasium classes during the year. In educational work, 86,734 members pursued courses of study in evening vocational classes. Bible classes show that 129,638 men and

boys were enrolled; 37,825 decisions for the Christian life were recorded, and 5,397 united with the Church.

Foreign work of the International Committee, projected in the mission fields following the Philadelphia International Convention of 1889, required a budget of \$1,289,218.18 in 1919. A World Commission of the North American Associations, representing all parts of the United States and Canada, authorized in 1919, has been appointed to promote the worldwide programme of the Association. In Japan, China, India, the Turkish areas, and South America, national and international organizations have been formed to direct the Association movement. These Associations have abroad over 600 employed secretaries, 184 of whom are maintained by the International Committee.

The National War Work Council of the Y. M. C. A. during 1919 not only continued its war-time activities in every part of Europe where service men were still stationed, but opened new centers at every new Army and Navy post, from Archangel, Russia, to the Island of Guam, and extended its home work to meet the needs of all returning soldiers and sailors. It continued along the lines that it had followed since it was organized on April 28, 1917, at the recommendation of the International Committee, following the tendering of its services on the day the United States entered the war, and acceptance by President Wilson in a special executive order to the Army and Navy Departments.

Financial reports made to the War Department covering the period April 26, 1917, to April 1, 1919, show \$125,282,859.54 received through contributions and interest. Expenditures reached \$97,817,005.50, of which \$46,999,415.91 was with the A. E. F. and \$14,409,175.95 with other Allied armies and war prisoners. In the budget for the period from Oct. 1, 1918, to Jan. 1, 1920, approved by the War and Navy Departments, the National War Work Council estimated total expenditures of \$119,342,042, \$67,732,000 with the A. E. F., \$20,365,000 with other Allied armies and prisoners, and \$28,274,042 at home.

Concerning Y. M. C. A. activities overseas, Secretary Baker said on

May 16, 1919: "The Y. M. C. A., by reason of its longer establishment, its larger experience, and its larger facilities, had the greater part of this work to do, especially abroad. It was an integral part of the Army." General Pershing said: "It has been a large aid in the accomplishments of the American Army." The following facts indicate its activities overseas. It operated 3,356 huts, 1,800 for the A. E. F. alone; sent overseas more than 12,000 secretaries, including 2,500 women workers; operated the Army post exchanges or canteens, at General Pershing's request, at a loss of \$2,432,089.70. Its free canteen service to March 31, 1919, totalled \$1,794,771. It organized and turned over to the Army after the armistice its \$3,000,000 A. E. F. University system, now permanently adopted by the Army (see also XXX, *Education*). In partnership with the A. E. F. it organized and conducted the "inter-Allied championships," constructing the Pershing Stadium near Paris for that purpose and supplying athletic equipment valued at \$2,500,000.

The American Y. M. C. A. maintained similar service for the French Army, through the *Foyer du Soldats*, for the Italian Army, through the *Casa del Soldato*, and for the loyal Russian, Portuguese, Czecho-Slovak, Polish, Japanese, Chinese, Greek and Siamese armies. It served American and Allied prisoners all over the world. It gave service to the American and French navies. In spite of the fact that welfare workers were non-combatant, 10 Y. M. C. A. workers, two of them women, were killed by shellfire or gas, 133 were wounded, 104 were decorated for bravery, and 214 were cited in Army orders.

Its home activities were almost as great. The Y. M. C. A. carried on its service programme in 874 specially constructed buildings in Army and Navy training stations, camps, and cantonments, in the United States and insular possessions. Their construction and equipment cost \$7,887,633.36 to March 1, 1919, and their operating expenses totalled \$20,225,947.96.

Young Women's Christian Association.—With the signing of the armistice the work of the Young

Women's Christian Association War Work Council underwent considerable changes. It continued its work abroad on a greatly reduced scale as the number of American troops in France was gradually reduced by bringing them to the United States. Hostess houses were continued abroad wherever they were needed and also in this country in connection with the military camps that remained. At the request of the Secretary of War the service in the camps was more directly to the men and less to those who came to visit them. The work of the Association has been made available to Government offices employing thousands of young women, whose needs have been considered and served. Many of the 20 industrial service centers have become so integral a part of the community life and so marked in results among the girls

that they are being continued as part of the reconstruction programme of the Association. Sixteen centers have been opened in isolated regions where special industrial problems must be met. Thirty-four vacation camps provided approximately 20,000 girls with week-end or longer vacations. The Association is also developing its work of social education. Among the new and interesting work of the Association was the care of French war brides coming to the United States; in this the Association coöperated with the American Red Cross. The Association is working in Archangel and Siberia, Russia. It has five centers in Italy and one in Prague. It also has a center in Constantinople, with other centers in Smyrna, Aleppo, and Aintab. The amount expended upon this general work up to 1919 was nearly \$9,500,000.

JUDAISM

ABRAM S. ISAACS

Foreign Problems.—Although in the later stages of the Peace Conference, when the subject of Zionism was brought to the front, much friction developed between the different elements among the Jewish delegates, this was so effectively smoothed that the Jewish cause received adequate presentation. If the guarantees were not embodied in the Covenant of the League of Nations, due to Japan's insistence as to racial equality, separate treaties met the situation (see also II, *International Relations*). Conditions in Poland, Lithuania, and the Ukraine in particular were very distressing, despite the written word as to civil and religious equality (see also III, *Foreign History*). Popular prejudice for ages is not so rapidly overcome. The fact that some of the Bolshevik leaders are Jews by birth has aroused anti-Semitism here and there. In Austria 100,000 Jewish refugees from Galicia were ordered to leave the country. Germany's new constitution gives full civil and religious freedom. The Peace Conference has not expressed itself as to the status of Palestine or of the old Turkish Empire in general, a subject of vital importance to the Jewish inhabitants.

Aftermath of the War.—The year has been the most critical in centuries for the Jews abroad, particularly in eastern Europe. Suffering like the rest in the years of strife, they are enduring more than others in the period of recovery, for nations cannot so readily forget old legends as to the Jew's inferiority, making him the lawful prey of his superiors. Hence are chronicled a long series of executions and pogroms which appear to be unchecked despite commissions of inquiry sent by western nations. Allowing every margin for exaggeration, the helpless victims, men, women, and children, run into many thousands in Poland, the Ukraine, and Russia. Some figures place the deaths as reaching several hundred thousands, and the end has not been reached. Happily, the survivors of the excesses and the starving populations in general, have received timely aid in food and clothing from their brethren in other lands.

On Oct. 5 an appeal was issued in Paris, the first of its kind in any country, protesting against anti-Jewish pogroms in eastern Europe, "compared with which the pogroms under the Czar, the massacre at Kishineff, were as the play of children."

It describes in brief the excesses in Bessarabia by the Rumanian troops, in Eastern Galicia, and Ukrania, and demands immediate organization of committees of defense and the united moral support of the world. This unique document was signed by Anatole France, Charles Seignobos, Henri Barbusse, Michel Corday, Professor Larnaude, Albert Thomas, Ernest Lavisse, Georges Duhamel, Pierre Mille, and others.

Aid for War Sufferers.—In addition to contributions to more general causes, the American Jews with the help of Christian friends have sent abroad since the war's beginning a total of \$32,000,000. At first funds were raised by private collection, but in 1917 a broader system was begun. After the armistice about 30 commissions were sent to investigate and report on conditions in Poland, Galicia, Lithuania, Rumania, Bulgaria, Serbia, Greece, Turkey, Asia Minor, Palestine, and Siberia, together with the needs of Jewish prisoners and groups of refugees. It was expected that \$35,000,000 would be raised in 1919 to finance the necessary work. A steady stream of contributions was received by local committees throughout the country, and a regular system of supply shipments was instituted. A reconstruction organization, with an initial capital of \$10,000,000, was favorably considered in October, to coördinate the work abroad and at home, and to direct a staff of medical, technical, economic, and social workers in the fields of greatest necessity.

Jews in the War.—The latest issue of the *American Jewish Year Book* (1919-20) gives many facts of interest as to the participation of Jews in the Great War. In France out of a Jewish population of 70,000, of which 40,000 are native, were supplied eight generals, numerous colonels, captains, and other officers, and many aviators. In Great Britain, 50,000 out of its 400,000 Jews were in service, 1,140 being officers, with 8,674 total casualties. Five received the highest distinction, the Victoria Cross; Sir John Monash became lieutenant-general; Brig.-Gen. H. J. Seligman was of the Royal Artillery; Lieut.-Commander R. Saunders was one of the seven of-

ficers to receive distinction in 1918 for the blocking of Zeebrugge and Ostend. Records still incomplete show 150,000 Jews in the Army and Navy of the United States, with 7,924 commissioned officers in the army and 433 in the Navy. Six hundred distinctions and honors are chronicled.

American Jewish Organizations.—The total number of congregations in the United States has reached 2,960, with 260,000 members, of which 1,127 are in New York and vicinity, with 130,000 members. At an average of three to a family, this would indicate that 800,000 are affiliated with the synagogues. Special holy-day services, which are more numerously attended, account for a million more adults; 584 congregations have religious schools, with 50,000 pupils. In addition to 14 national Jewish organizations of a benevolent character, with 576 branches and a total membership of more than 250,000, are 1,071 charitable agencies. Out of the 46 organizations listed as charitable, 41 report an aggregate income of \$6,325,602. Of the 144 periodicals, 75 are magazines and newspapers and 69 organs of societies and class papers. Of all the publications 102 appear in English and 36 in Yiddish; 10 are dailies, 57 weeklies, and 56 monthlies.

In addition to active participation in the various drives for general war relief and special local causes, the Jews in New York raised \$10,000,000 in October for constructive work for their 27 federated institutions, which for four years had spent nothing for repairs or improvement. At the opening of the campaign nearly \$7,000,000 was pledged by the business men, who organized trade divisions. Later in the year contributions were given by non-Jewish friends with the kindly spirit typical of America.

Zionism in America.—The Zionist convention held in Chicago on Sept. 14, was largely attended, with over 700 accredited delegates. The general attitude was hopeful on the part of the leaders. Membership had been multiplied by ten and the valuation fund tripled. In 1920 about \$3,000,000 is scheduled for extension, of which half will be used in Palestine. Plans were recommended for organiz-

ing international financial and industrial relations between Palestine and other lands, for further propaganda, for importing tools and raw materials. Among the new officers are Justice Brandeis, Judge Julian W. Mack, Rev. Stephen S. Wise, H. Friedenwald, J. De Haas, Louis Lipsky, and Henrietta Szold.

Necrology.—Among the deaths of the year were, in the United States, Adolph Marix, rear-admiral; A. J.

Dittenhoefer, jurist; Rudolph Aronson, composer; Abraham Jacobi, physician; Adolph Werner, professor in the College of the City of New York; Louis E. Levy, inventor. Deaths, abroad included Lord Michelham, London; Ludwig Geiger, historian, Berlin; Alfred Levy, Chief Rabbi of France; Albert Harkavy, author, Petrograd; Aaron Aronson, botanist, Palestine; Kurt Eisner, Premier of Bavaria.

RELIGIOUS BODIES IN THE UNITED STATES IN 1918¹

Denominations	Bodies	Ministers	Churches	Communicants
Adventists	5	1,564	2,878	123,768
Assemblies of God	....	700	200	10,000
Baptists	14	43,656	58,913	7,213,922
Brethren (Dunkards)	4	3,691	1,274	128,363
Brethren (Plymouth)	6	....	458	13,244
Brethren (River)	3	203	122	5,962
Buddhist	....	34	12	5,639
Catholic Apostolic	2	33	33	6,590
Catholics, Eastern Orthodox	7	387	467	472,794
Catholics, Western	3	20,857	15,954	14,927,466
Christadelphians	....	....	72	3,200
Christian (American Convention)	....	1,023	1,199	101,614
Christian Union	....	365	330	16,825
Church of Christ, Scientist	....	3,138	1,569	....
Church of God and Saints of Christ	....	101	95	3,311
Church of God (Winebrenner)	....	441	514	23,575
Churches of God (General Assembly)	....	607	321	14,867
Churches of the Living God (colored)	3	344	192	11,607
Churches of New Jerusalem	2	131	146	9,772
Communitist Societies	2	....	19	1,901
Congregational Churches	....	5,851	6,040	815,396
Disciples of Christ	2	8,538	14,482	1,511,160
Evangelical Bodies	2	1,624	2,546	209,697
Evangelistic Associations	15	444	207	13,933
Evangelical Protestant	....	34	37	17,962
Evangelical Synod	....	1,112	1,376	260,045
Free Christian Zion (colored)	....	29	32	6,225
Friends	4	1,331	992	119,233
Jewish Congregations	....	721	1,901	357,135
Latter-Day Saints	2	7,490	1,640	435,797
Lutherans	16	9,923	14,839	2,443,812
Scandinavian Evangelical	3	517	429	38,652
Mennonites	11	1,461	875	77,981
Methodists	15	42,251	64,021	7,579,311
Moravians	2	150	142	22,921
Non-Sectarian Bible Faith	....	26	58	2,273
Pentecostal	4	1,345	1,338	45,076
Presbyterians	10	14,006	16,315	2,259,358
Protestant Episcopal	2	5,772	8,185	1,072,321
Reformed	4	2,279	2,805	519,962
Salvation Army	....	2,918	957	48,786
Schwenkfelders	....	5	7	1,170
Social Brethren	....	10	19	950
Society for Ethical Culture	....	7	6	2,450
Spiritualists	....	500	400	50,000
Temple Society	....	2	2	260
Theosophical Society	....	....	191	7,187
Unitarians	....	504	472	71,110
United Brethren	2	2,276	3,871	367,996
Universalists	....	620	850	59,650
Independent Congregations	....	267	879	48,673
Total, 1918	....	189,288	230,685	41,565,908
Total, 1917	....	187,366	230,125	41,281,368
Net increase	....	1,922	560	284,540

¹ Prepared by H. K. Carroll for the *Christian Herald*.

XXVIII. ART, ARCHITECTURE, MUSIC, AND DRAMA

PAINTING, SCULPTURE, AND HANDICRAFTS

WILLIAM B. M'CORMICK

War's Aftermath in the Art World.—Something of the spirit of unrest troubling the world in the reaction after the war was reflected in the American art world during 1919 in dissensions in art societies, notably in the National Academy of Design in the National Sculpture Society, and among the various art bodies in Philadelphia. Expenditures of war profits was also noted in such instances as the purchase of the Howard Mansfield collection of Whistler's etchings and lithographs for a price said to be in excess of \$250,000; in the establishment of the National Portrait Foundation with a gift of \$100,000 by Cristoffer Hannevig of New York City to secure 25 portraits of Americans who have come into prominence through the war; and in the formation of a National Art Committee, with Henry White as honorary chairman, to arrange for the painting by American artists of portraits of military, civil, and religious leaders in the Great War to be hung in the National Portrait Gallery, at Washington, the project to entail an expenditure of \$250,000.

Among art benefactions of the year was the gift by Louis C. Tiffany of his home, "Laurelton Hall," at Cold Spring Harbor, Long Island, with an endowment of more than \$1,000,000 to found an institution for the teaching of art and the establishment of a museum. Under the will of the late George W. Elkins of Philadelphia, which was filed on Oct. 30, the city of Philadelphia was bequeathed the collection of paintings left him by his father, William L. Elkins. The collection is valued at \$2,500,000 and includes 110 paintings of various schools. A fund of \$500,000 was also provided for the maintenance of the collection and to make additional

purchases. Through the will of Charles L. Freer, who died in New York on Sept. 27, the Smithsonian Institution comes definitely into possession of the famous Freer art collections and the art gallery built to contain them which was begun in Washington in 1916 and is now practically completed. By the will of Henry Clay Frick, who died in his home in New York City on Dec. 2, there is to be incorporated "The Frick Collection," which provides for the gift to the public of his Fifth Avenue residence with its art collections, valued at \$50,000,000, and an endowment of \$15,000,000 to maintain it, the institution to be managed by nine trustees, including his widow, son, and daughter.

International exchanges in the form of art exhibitions were marked by the opening in the Luxembourg Museum in Paris on Oct. 6 of an exhibition of the work of American painters and sculptors, containing nearly 200 examples, arranged at the invitation of the French Government. The British Government sent a "war exhibition" to the United States which was first shown in Washington in January and made a round of our larger cities from Boston to San Francisco; Canada also sent its War Memorial Exhibition to the United States, comprising sixty canvases. The first exhibition of the work of the eight American artists who were commissioned in the U. S. Army to picture the Great War (*A. Y. B.*, 1918, p. 748) was opened in Philadelphia in April. The several hundred paintings and sketches comprising the collection were deposited in the National Museum in Washington in September, a part of them being placed on public exhibition. The tenth annual convention of the American Federation of

Arts was held in the Metropolitan Museum of Art, May 14-17, the chief topic of discussion being war memorials.

Museums.—One museum was added to our permanent art institutions during the year, the Butler Art Institute at Youngstown, Ohio. The museum, which was opened on Oct. 16, is a gift to the city from J. O. Butler, Jr.; the building is of white marble in the manner of the Italian Renaissance. A bequest to the Boston Museum of Fine Arts made by Henry C. Angell of that city includes 40 modern paintings, chiefly French and Dutch. The Buffalo Fine Arts Academy received a gift of \$100,000 from Col. Charles Clifton. By the will of Harvey Wetzel of Detroit Harvard University received a bequest of \$100,000 to be expended for art works for the Fogg Museum; Mr. Wetzel also left half of his art collection to the Fogg Museum, the remainder to go to the Boston Museum. The Carnegie Institute of Pittsburgh has announced that the Institute's international art exhibitions, which had been interrupted by the war, will be resumed in 1920. The National Gallery of Art was reopened in April after having been closed many months. The Metropolitan Museum of Art will receive \$1,553,172 from the estate of Mrs. Margaret Olivia Sage, according to an appraisal of her estate made public in November. The Museum held an exhibition of 40 canvases by Courbet during April and May which revealed an unsuspected number of great works in private collections in the United States by this Frenchman whose centenary was thus celebrated. During December the Museum held an exhibition of modern French art which was arranged by the French Ministry of Art.

Exhibitions.—The sixth annual exhibition of the Allied Artists of America, held in the Fine Arts Building, New York City, Jan. 25-Feb. 10, included 316 paintings. The 114th annual exhibition of the Pennsylvania Academy of Fine Arts (February-March) included 405 exhibits. The prizewinners included Daniel Garber, Temple gold medal; Colin Campbell Cooper, Walter Lippincott prize of \$300; Juliet White Cross, Mary

Smith prize of \$100; Charles H. Davis, Jennie Sesnan gold medal; Leslie P. Thompson, Carol H. Beck gold medal; Arthur B. Carles, Edward T. Stotesbury prize of \$1,000; Jess M. Lawson, George D. Widener memorial gold medal; and Philip L. Hale, the \$200 popular-vote prize. The Gold Medal of Honor of the Academy was awarded to Hugh H. Breckenridge on May 30. The 94th annual exhibition of the National Academy of Design (March 22-April 27) included 231 paintings and 53 sculptures. E. W. Redfield was awarded the Altman \$1,000 prize; Gardner Symons, the Altman \$500 prize; Jerome Myers, the Thomas B. Clarke prize of \$300; the Julius Hallgarten prizes of \$300, \$200, and \$100 went to Robert Strong Woodward, Ercole Cartotto, and Dines Carlsen; the Isaac N. Maynard prize of \$100 to Irving R. Wiles; and the Saltus Medal to Malcolm Parcell. The Society of Independent Artists held its third annual exhibition in the Waldorf-Astoria Hotel, New York City, March 24-April 14, with 650 exhibits. The Albright Art Gallery of Buffalo held its 13th annual exhibition of American paintings during July and August with special groups by Whistler, Sargent, Tarbell, and Redfield. At the Palace of Fine Arts in San Francisco was opened in August a special exhibition of paintings by old and modern artists ranging from Rembrandt to Robert Henri. At the 32nd annual exhibition of the Art Institute of Chicago (Nov. 6-Dec. 10) the following prizes were awarded: Potter Palmer gold medal and \$1,000 to Mrs. Lillian Westcott Hale of Boston; Logan medal and \$1,500 to Leon Kroll; Harris silver medal and \$500 to Frederick Waugh; Harris bronze medal and \$300 to Robert Spencer. The first annual exhibition of the Society of American Painters, Sculptors, and Gravers, an organization formed in protest against the methods of the National Academy of Design was held in a dealer's gallery in New York City, Nov. 1-22, 40 artists, engravers and sculptors being represented. The Dallas (Texas) Art Association held its first annual exhibition of contemporary international art in the Adolphus Hotel in

Dallas in November with 100 modern paintings and 50 works of sculpture. The "Winter Exhibition" of the National Academy of Design opened on Dec. 13 with 294 paintings and 85 sculptures. Emil Carlsen won the Carnegie prize; Charles C. Curran, the first Altman prize; Gifford Beal, the second Altman prize; Walter McEwen, the Proctor prize; R. McClellan, the Isidor gold medal; Laura Gardin Fraser, the Julia A. Shaw Memorial; Rudolph Evans, the Elizabeth Watrous gold medal; Victor D. Salvatore, the Helen Foster Barnett prize. The seventh biennial exhibition of paintings opened in the Corcoran Gallery of Art at Washington on Dec. 26 with 316 canvases. The prize winners included: Frank W. Benson, \$2,000 and the Corcoran gold medal; Charles H. Davis, \$1,500 and the silver medal; Edward F. Rook, \$1,000 and the bronze medal; William S. Robinson, \$500 and honorable mention.

Sculpture.—The most impressive feature of the year in sculpture was the temporary Victory Arch erected in Madison Square, New York City, for the double purpose of serving as one of the decorative features of the city's welcome to the 27th Division of the A. E. F. in March and as a test of public opinion as to what form a permanent memorial of the war should take in New York. Thomas Hastings, architect, was given charge of the plans, and among those who contributed sculptures were Paul Bartlett, Philip Martiny, Chester Beach, Herbert Adams, Eli Harvey, Daniel Chester French, and H. M. Shrady. The arch was the cause of a spirited agitation in the National Sculpture Society as to whether the structure should be perpetuated in durable materials or whether some other form of memorial should be erected by the city.

Among the more important works of sculpture emplaced during 1919 were R. Tait McKenzie's standing figure of George Whitefield, evangelist, at the University of Pennsylvania, on June 15; Andrew O'Connor's "Boy Scouts of America," unveiled at the Glen View golf course, near Chicago, in August as a memorial to Theodore Roosevelt; and the

same sculptor's "Patriotism," unveiled at Duluth, Minn., in the same month, this symbolical seated figure of a knight in armor being carved in stone. One of the most striking and beautiful individual works of the year was Daniel Chester French's seated nude female figure called "Memory," presented to the Metropolitan Museum of Art in April by Henry Walters, vice-president of the institution. We note here to complete the record of a controversy of American origin (*A. Y. B.*, 1917, p. 700) that the replica of the Barnard statue of Lincoln offered to the city of London was finally unveiled in the city of Manchester, England, on Sept. 15, Alton B. Parker of New York making the presentation speech.

Medallic Art.—Eight medals commemorating the war and its achievements and in honor of individuals were designed during 1919. Of widest significance was the Victory Medal designed by James E. Fraser, the New York sculptor, for the Government, to be presented to all those who served in the armed forces of the United States between April 6, 1917, and Nov. 11, 1918. The design of the medal shows on its obverse a figure of Victory with the inscription, "The Great War for Civilization"; the reverse will bear the names of the Allied and Associated Powers. The American Numismatic Society announced on June 29 that Chester Beach, the New York sculptor, was the winner of the Society's competition for a peace medal. The same organization presented to the Prince of Wales during his visit to New York City in the week of Nov. 22 a medal designed by James Flanagan, the New York sculptor. The medal, of gold, shows on the obverse the Prince's portrait in profile with the three plumes and his crest and the inscription, "Edward Prince of Wales"; the reverse shows the figure of Columbia in an attitude of welcome with branches of oak leaves on either side and the inscription, "Commemorating the visit of H. R. H. the Prince of Wales to the United States, November, MCMXIX," and the devices of the Numismatic Society with the initials A. N. S. To commemorate the work of those who helped in the

war by cultivating gardens there was issued in May a medal designed by a committee the chairman of which was George Frederick Kunz of New York. Copies of the medal were presented to the heads of the Governments of the United States, Great Britain, France, Italy, and Belgium. In November the National Committee on Prisons and Prison Labor presented to President Wilson and four workers in the cause of prison reform proofs of a medal designed by Chester Beach; the organization proposes to make an annual award of the medal. The Woman's Roosevelt Memorial Association issued a medal in November designed by Anna V. Hyatt. The chief feature of the design is a profile portrait of the late President with the name of the organization and the word "Service." To commemorate the part its undergraduates and alumni took in the war Williams College of Massachusetts had designed a medal by James E. Fraser. The obverse shows a line of charging infantrymen, with the inscription, "For Humanity 1918" and the reverse the equestrian figure of Col. Ephraim Williams as a Continental Army officer with the inscription from the College seal, "E. Liberalitate E. Williams Armigeri, 1793." Beneath is the title of the medal. In commemoration of the centenary of the birth of Walt Whitman the Franklin Inn Club of Philadelphia issued in December a bronze medal designed by R. Tait McKenzie.

Mural Paintings.—Two more mural panels by John S. Sargent were added during the year to his series illustrating the history of religions in the Boston Public Library, being shown for the first time on Nov. 5. These panels symbolize "The Synagogue" and "The Church." The first composition shows the figure of an aged woman with eyes covered by a bandage, a crown falling from her head, clasping a broken scepter in her left hand. The figure, partly draped by heavy curtains of Oriental design, is seated on the steps of a ruined temple. The Church is symbolized by the figure of a nun-like woman, cloaked and hooded and seated on a throne. Over a figure of the kneeling Christ at her feet she holds a drapery

and in her outstretched hands a golden chalice and the eucharistic pyx. The attributes and Latin names of the four Evangelists are a part of the decorative scheme behind and above the figure. After the unveiling of the two panels a movement was begun by Boston Jews to have the panel representing "The Synagogue" removed, on the ground that it misrepresented Judaism. The two last panels for the mural decoration of the Senate Chamber at Harrisburg, Pa., by Miss Violet Oakley were emplaced in January. They represent two historical incidents of the state and are entitled "The Little Sanctuary in the Wilderness" and "The Slave Ship Ransomed."

Handicrafts.—The sentimental era in the cultivation of arts and crafts in the United States appears to have passed away completely with the changed conditions brought about by the war in the world of applied art. Evidence of the new trend was given during 1919 by an exhibition held in the American Museum of Natural History in New York City in November, when a section of the main museum floor was given over to a display of designs and materials of native origin such as before the war were fostered only by the local arts and crafts societies of the country. The Metropolitan Museum of Art also gave an exhibition in January of arts and crafts products of the utilitarian order but made by manufacturers or independent studios. The Architectural League of New York City also gave an exhibition in November of American-made textiles, and an exhibition of batik work was shown during August by a commercial organization in the Bush Terminal Sales Building in New York City. The American Federation of Arts sent on a circuit of the principal cities of the country an exhibition of jewelry, textiles, furniture, stained glass, and other craft work. The National Society of Craftsmen opened the School for Craftsmen in New York City in November. At the annual meeting of the Boston Society of Arts and Crafts on March 21 it was reported that the sales for the year had been \$76,000 in spite of war conditions.

Necrology.—**Ralph A. Blakelock**, landscape painter, died on Aug. 9 in a camp near Elizabethtown, N. Y., aged 72 years. He was born in New York City and was self-taught, painting Indian themes and landscapes until privation drove him insane twenty years before his death. While in a state asylum at Middletown, N. Y., his work received honorary mention at the Paris Exposition of 1900 and he was elected a National Academician in 1916. **Frank Duveneck**, figure painter and sculptor, died in his home in Cincinnati on Jan. 2 in his 72nd year. Born in Covington, Ky., he studied in Munich under Dietz and others and on returning to the United States lived in Boston for several years; in 1915 he received the Medal of Honor at the Panama-Pacific Exposition. **Charles Y. Turner**, mural and genre painter, died while on a visit in New York City on Jan. 1. He was born in Baltimore in 1850 and went to Paris in 1878, where he worked under Laurens and Bonnat. At the World's Columbian Exposition in Chicago in 1892 he was assistant director of decoration and he occupied a similar position at the Pan-American Exposition. **E. L. Henry**, best known for his paintings of transportation themes in the United States and for genre sub-

jects, died in his home Ellenville, N. Y., on May 11, aged 78. **Kenyon Cox**, painter, sculptor, and art critic, died in his home in New York City on March 17. Son of a former governor of Ohio, he was born in Warren in that state in 1856. As a youth he studied in the McMicken Art School in Cincinnati, later going to the Pennsylvania Academy of Design and to Paris, where he worked with Gerome. **Mrs. Sarah Morris Green Wise**, sculptor, died in her home in New York City on May 15. She was born in Oneta, Ill., in 1877 and studied in Paris with Rodin; her first work was exhibited in the Paris Salon, and for it she was elected a member of the National Sculpture Society. **Julian Alden Weir**, painter, died in his home in New York on Dec. 8. He was born at West Point, N. Y., in 1852 and studied with his father, who was instructor in drawing at the U. S. Military Academy, and later in Paris with Gerome. He was one of the founders of the Society of American Artists and the Ten American Painters and was president of the National Academy of Design from 1915 to 1917. **Gilbert William Gaul**, painter, died in his home in New York City on Dec. 21, aged 64. He was best known for his spirited pictures of Civil War scenes.

ARCHITECTURE

CHARLES H. WHITAKER

Architecture in War.—One is inclined to begin an estimate of American architecture in the year 1919 with the bold statement that at no time in the history of the United States has architectural evolution been so disturbed. But such a statement does not relate itself to buildings, because of new structures, due to numerous causes, there have been few. The anticipated building revival that had been looked for to begin immediately upon the close of the war has not taken place. It cannot be said, therefore, that this disturbance of architectural evolution had anything to do with new structures. Rather has it had to do with a dawning perception of the forces that lie behind the production of buildings, a perception that may slowly but surely

have the effect of changing the attitude of architects toward the profession they serve. The war resulted in many questionings in all lines of human endeavor, and in no vocation or profession were the questionings more keen than in the profession of architecture. It cannot be said that the questionings began in 1919, or even at the close of the war. They began almost immediately upon the entrance of the United States into the war. Then came the first insistent question: What great contribution can architects make toward the successful prosecution of the war? It was a moment when all good men felt the need of giving their best in service, and yet to many the very wish was born of a great perplexity. How could they give their best? To

architects it seemed at first glance as though architecture could have nothing to offer to war. War is an agent of destruction, architecture is an agent of construction. The two are violently opposed to each other, and yet events subsequent to May, 1917, proved that the art and science of construction were to play a tremendous part in the waging of war.

To the architect, then, the first insistent question of service came as one of great perplexity. It would not down but became ever more and more insistent. Even after the armistice had been signed, it still continued, only it then related itself to the world after the war. The precise measure of the architects' war contribution has not yet been estimated, but although at first the profession was inclined to consider that their services had not been made use of to the extent of which they were capable, time will undoubtedly prove that their contribution was quite as great in proportion to their numbers as that of any other profession. Architects were called upon as the war went on for all sorts of work such as their training peculiarly fitted them for, not only in building hospitals, homes, warehouses, and other structures, but also in camouflage work at the front and educational work among the soldiers. Without doubt the architectural university of the A. E. F. at Beaune, with its several thousand students, may have a profound effect upon the architectural schools of the United States, just as the work of architects in the various Government bureaus at home, where they learned the value of coöperative effort with engineers and builders, will exercise a great influence on the business of building.

Social Value of Architecture.—Out of the great question that had been raised in war time, a desire to know how architecture could best serve war, there grew up within the profession the desire to know how large a part architecture plays in the complex world of modern society—how well does it play its part, how great a percentage of society does architecture serve, are architects rightly trained properly to serve society? The war had shown the modern world to be

quite a different thing from what it had been thought to be. The pitiless searchlight of national need and danger had been turned into even the darkest corners, and great questionings arose on all sides. In seeking an answer to such questions as these, which the architectural profession has been debating in 1919, most architects find themselves for the most part upon new ground. It has not been the custom in this rather isolated profession to question the social value and significance of architectural effort or to attempt an evaluation in social terms of the colossal building activities of the United States. Somehow or other it was vaguely hoped that the art of good building ultimately would prevail; that through some educational process the appreciation of architecture would slowly come to a fruition; and that somewhere in the distant future the architect and his architecture would be appraised at their full value. But, on the other hand, it has become increasingly apparent to many architects and to many lovers of architecture that advance in social value was not proceeding as smoothly as had been hoped. Relatively the quantity of good architecture produced in the United States showed no perceptible increase if the whole volume of building were studied, and in comparison with the earlier days of our history it even seemed to show a lamentable decrease. Our towns and cities have grown up like mushrooms, without plan, without organization, without control. In the larger cities the problems of housing, transportation, traffic, sanitation, recreation, and public welfare have grown to such proportions in the last decade as plainly to compel an admission that something was wrong with the function of architecture or that something was wrong with the profession through which it functions.

Naturally among architects there arose a division of opinion along the usual lines. A certain group merely shrugged shoulders, pointed to the war, and expressed the confident faith that within a short time all would be as it had been and that architecture stood serenely, safely, out of reach of the after-effects of the war.

But a larger group could not answer their questionings so simply. The facts did not seem to justify so simple an answer. Our towns and cities are spread before us where all may see, and certainly no sane being can look upon them and call them anything but architecturally ugly. Here and there are inspiring oases in the desert. There are public buildings, residences, railway stations, parks, schools and playgrounds that are pleasing to the eye and that mark a certain era of progress. But what the courageous architect says to himself is this: "Why is the progress so slow, and what can be done to speed it up? For one beautiful building there are a thousand ugly ones. Is it my fault or is it the fault of the Government, or is it the fault of the school and our whole educational system? Where lies the difficulty? Why is it that so many millions of people have to live in such wretched human habitations, and why has the housing problem which we thought belonged only to the dying monarchies of Europe fastened itself upon the United States? What can be done first of all to prevent any further additions to our slum areas, and then how can we get rid of those we already have?"

These questions seem far removed from architecture the art. We have not as a nation considered architecture as the servant of all men. Rather have we looked upon it as the servant of those who could pay the architect's fee. But it is quite evident that only a very small percentage of our population is able to indulge in such a luxury, and thus with such an admission we find ourselves obliged to ask, where lies this fault? Why is it that the architect plays so small a part in the gross volume of our building operations? Is it because of his defects, or does he charge too much, or is he looked upon as an unnecessary luxury? As we probe farther and farther toward the heart of our quest, we may come to ask: Is not the whole system by which are supplied the building needs of the world quite wrong? And so we turn accusingly toward building speculation, of which the volume is vast, since it supplies most of our

building needs. Here we seem at last to have found the answer, for simple experience tells us at once that speculative building must be cheap, for it is built to be sold quickly at a profit. But the volume of it is so enormous that one must not stop here, but resolve courageously to inquire why more and more building becomes speculative. Why it is that people no longer build as they once did but allow their building needs to be supplied by men who have no interest in the process besides the maximum profit that can be wrung from it?

Architecture the art has no part in all of this, although it is often made responsible, mistakenly, for the sham decoration or tawdry ornament that the speculative builder may employ as a part of the whole deception. Architecture, the art of building well and soundly, of weaving beauty into structure as naturally as a weaver brings the pattern into a textile, could scarcely be considered in trying to estimate the architectural effect in the great mass of buildings which up to the war were increasing with mushroom-like rapidity. Only a very small percentage of our building came within the range of what we call good architectural effort. The rest sprawled its riotous way up and down the land, sowing congestion like a scourge, shutting out ever more and more the light of day from human habitations, turning even city offices into dark closets where artificial light was the rule and not the exception, so furious grew the craze to crowd more and more building on a given piece of land. In the wake of this followed the other problems of traffic congestion, taxing our cities to find a solution and yet by their very nature effectually preventing any solution from being found.

All in vain do we point to the progress of the architect. In the sphere in which he serves we may, it is true, note a rising standard. Our public buildings are better than they used to be. Some of our schools are veritable creations where use and beauty blend happily and yield a pleasure of which we are conscious the moment we set eyes upon them. Our more luxurious domestic archi-

ture grows finer and simpler, depending more for perfection upon mass and line than upon slavish borrowing from a past which we only imperfectly understand and which has no relation to the present. Our industrial buildings begin to take on a specific character such as causes us to pause before them and admire their simple harmony of line and color and form, obtained by the careful use of materials and not spoiled by the substitution of something that cost less. All through the real architecture of the last decade we find the spirit of truth and honesty becoming increasingly evident in the small percentage of building presided over by architects. But alongside this and exceeding it vastly in volume rises the waste of our dreadful slums, the aridity of our long rows of gridironed city streets, where scarcely one house in a hundred has anything to offer of a welcoming invitation to enter. And ever the cost of building increases and the space allotted for human habitation dwindles.

Where has architecture failed in the great American experiment in democracy? What has happened, and whose the fault? The answer is that modern building, on the whole, is a continual battle to overcome the cost of the land on which buildings are to stand. Wherever men go, to live or to play or to work, the site value of land rises like a snowdrift in the night. The modern struggle of architecture is to overcome this unseen and even unsuspected foe. As the cost of building sites rises, there is less money to put into the building, for the whole investment for both land and building must be kept down to a point at which it will yield an interest return in competition with other investments. Then begins the battle in which men fight blindly against forces which forever elude them. The architect is always fighting this battle, so far as our city development is concerned. The speculative builder must fight it too, but in the case of the architect the struggle is far harder, for he realizes the nature of the task before him, the making of a good building, and he cannot be content with the failure forced upon him. The speculator, on

the contrary, fights the land problem by cheapening his structure to the last piece of hardware on his rattling windows, caring for nothing except to escape with a profit on his adventure.

It is idle to blame the speculator. It is the system that must be examined. The research of those architects whose task it was to bring order out of the housing chaos into which the war plunged us so suddenly disclosed the fact that the housing problem is no more than a problem in the cost of land. Given cheap land, good houses could be built at a fair cost, but the problem was how to keep the cost of land low. Unfortunately, under our system of land tenure and use, by which the percentage of home owners and farm owners has steadily increased in this country until we are rapidly nearing the conditions of Europe, land cannot be kept cheap, and thus we have arrived at the same impasse. We no longer know how to house in a decent and respectable manner, and at a rental which they can afford to pay, our workers who earn small wages or salaries.

Now architecture is the art or the science, or both, of ministering to the needs of shelter for all the activities of man. It begins primarily with a useful function, the simple function of shelter, involving the problems of sound construction so that the building shall be safe and durable; of careful planning, so that the building shall fulfill its functions as easily and effectively as possible; of making it good to look at, so that men shall have pleasure in using it and in seeing it. Not one of these elements can be omitted from architecture, and there is none to be added. But under the present system of land exploitation, where every human development and improvement is capitalized into an increased charge for the use of the land, architecture in the great majority of cases cannot fulfill any of its functions. It is forced into the whole competitive system of modern industry which is based on the principle of making things for sale and not for use.

The future of American architecture is involved in the modern movements for land control, such as are evidenced

in the zoning laws in force in some of our cities and in process of enactment in others and in city planning legislation of the advanced type as found in New Zealand and Canada (see VI, *City Planning*). Under such laws providing for land control architecture will have an opportunity of proving its worth as a department of human service. Without such laws it must remain merely an isolated art obtainable only by the fortunate few.

Notable Buildings.—Because of the long cessation of building on account of the war, the architectural record for the year 1919, as expressed in new structures, is of necessity slight. But no observer can fail to note the healthy growth of architectural effort in the United States. More and more are we solving our problems in terms of the present, both as to structure, plan, and purpose, and less and less are we slavishly following traditions of the past. It would perhaps be unfair to single out two particular buildings in a period of pronounced activity, but this year it is permissible. Certainly the new Hotel Pennsylvania in New York City has set a new and very high standard for buildings of this kind. There seems every reason to believe that for some time to come it will be studied as to plan, arrangement, and service by all who are interested in this kind of a building. There should be mentioned also the new terminal freight station of the Pennsylvania Railroad in Chicago. Whatever may be the verdict as to the merit of the exterior design, the fact that a great railroad company has made so conspicuous an

effort toward a genuine architectural solution of a part of its plant which has hitherto been despised and neglected possesses great significance. Beside these structures the annals of the year will probably include a great deal of the work of the Government in building new communities for workers (see also VI, *Housing*). There seems no reason to believe that they have made any vital contribution except as they have exemplified certain excellences of plan and design. Toward solving the great basic economic question of homes for workmen they have made no contribution whatever.

The Rebuilding of Europe.—A French mission on reconstruction visited the United States early in the year and enlisted the aid of American architects in the rebuilding of the devastated areas. Plans are now under way for coöperation between the American Institute of Architects and their professional confrères in France which will be effective along certain technical lines. It is proposed to establish a permanent bureau for the exchange of information with regard to building problems so that American architects may contribute the results of their extensive experience in large-scale building projects. It is in this particular that the French most need help, and it is from this kind of experience that American architects can best offer them assistance. In the planning and design of their new communities they are, of course, amply capable of taking care of themselves. (See also VI, *Housing*.)

LANDSCAPE ARCHITECTURE

AUBREY TEALDI

Professional Conditions.—After the cessation of hostilities in the autumn of 1918 there was no longer the extraordinary demand by the Federal Government for the services of landscape architects as city planners. Since then the men who had been making Washington their headquarters have returned gradually to their respective cities and resumed private practice. It should be noted as a matter of general interest that the housing projects for the Govern-

ment having brought the engineers, architects, and landscape architects into close association, there is already noticeable a better understanding and a greater spirit of coöperation among these sister professions. Such coöperation should result in a greater economy and a higher standard in applied art, especially in public undertakings.

The officials of the American Society of Landscape Architects have been actively engaged in reconstruct-

ing society affairs so as to meet the new conditions created by the war. The Committee on Professional Practice and Ethics has prepared a new report, including methods of charging, which will be of value to the practising landscape architect and to his client. The Committee on Relations with Trade has brought to a satisfactory decision some vital matters connected with the nursery trade.

Private Work.—The development of city-planning schemes, stimulated as it has been by the activities of the war, has greatly increased, and at the end of 1919 there is more interest in this field of the work than in any other (see also VI, *City Planning*). Still, the reports from the country at large show that private development, which was interrupted by the war, is being partly resumed. A good deal of work has been done on small places but much less on larger estates; this condition, of course, is due to the abnormally high cost of materials and the scarcity of labor. It would seem that the amount of private work being done is greatest in the Middle West.

Due undoubtedly to the stimulus of war-time developments, many of the companies employing large numbers of men are developing subdivisions for their employees and providing recreation facilities for them close to their work. As examples may be mentioned the Du Pont Powder Co.'s enterprises at Flint and Pontiac, Mich.; the Tap and Die Corporation's subdivision at Greenfield, Mass.; the Inspiration Consolidated Copper Co.'s housing improvement at Miami, Ariz.; and the Simmons Co.'s Athletic Field at Kenosha, Wis. (See also VI, *Housing*.)

Parks.—The number of park projects credited to the year 1919 is remarkably large. Not only are the cities making timely provision for

park spaces, but counties and many states as well are acquiring land to be preserved as public parks. It is gratifying to note that in many cases these lands are the gifts of individuals or groups of citizens. What this generous park provision is going to do for the welfare of future generations it would be difficult to overestimate. New parks have been acquired by the cities of Atlantic, Clinton, Muscatine, and McGregor, Iowa; Carlinville, Glen Ellyn, and Pekin, Ill.; Gary, Huntington, and Indianapolis, Ind.; Detroit, Menominee, and Port Austin, Mich.; Dunkirk and Cobleskill, N. Y.; Columbus and Alliance, Ohio; Huron and Mitchell, S. D.; Mobile, Ala.; Berkeley, Cal.; Frankfort, Ky.; Enid, Okla.; Valley Forge, Pa.; and Abilene, Tex. This partial list shows that many of the smaller cities are profiting by the lesson offered by the larger cities in their past lack of foresight in park matters. The following new state parks deserve mention: Wild Cat Glen, Devil's Back Bone, and others near Farmington, Keosauqua, and Tama, all in Iowa; and Sibley, Austin, Toqua, and Whitewater state parks in Minnesota.

Many good and many bad ideas have been propounded on the subject of war memorials in communities both large and small. Of all the types of memorial that may well be considered suitable the most lasting and most appealing should be the memorial park. There is so much to be said in favor of such a memorial that it is not surprising that so many cities and counties have either already acquired or are expecting to acquire land for this purpose. Among these may be mentioned Albion and Ironwood, Mich.; Henryetta and Muskogee, Okla.; Pottstown and Uniontown, Pa.; Pine Bluff, Ark.; Rockford, Ill.; Winamac, Ind.; Baton Rouge, La.; Luverne, Minn.; and St. Mary's.

CLASSICAL ARCHÆOLOGY

WILLIAM NICKERSON BATES

Effects of the War.—Since the outbreak of the war in Europe classical archaeologists have been able to do little work in the field. Regular excavations were discontinued everywhere, and such digging as has been

done has been sporadic and usually connected with military operations. Early in the war the American School of Classical Studies at Athens worked for a time at Corinth. The site has since become a menace to the

community because of malaria, and the American Red Cross together with the Greek Archæological Society and the town have undertaken to clean it up and put it into sanitary condition. This will be a great boon to the excavators when work is resumed.

American museums have made few important additions to their collections during the last two years because it has been impossible to bring to this country purchases made abroad. The Boston Museum of Fine Arts has acquired a small helmeted head of a warrior which dates from the second half of the fifth century B. C. and probably came from the frieze of the Temple of Wingless Victory at Athens. The Metropolitan Museum of New York has acquired some interesting Greek vases.

Greece.—No important discoveries have been made in Greece. French archæologists have explored several mounds near Salonica. These are of two kinds, table-shaped mounds and round tumuli. The latter were either village sites or burial mounds. In the latter case they date from Hellenistic times.

Italy.—In Italy the most important discovery was a large underground basilica found by accident about two kilometers from Rome, on the railway from Rome to Naples. It has three aisles separated by pillars with arches. The walls, vault, pilasters, and apse are covered with reliefs in white stucco; some represent mythological scenes, such as Jason and the Golden Fleece, the punishment of the Danaïdes, etc., and others, cult objects and ornamental patterns. A vestibule adorned with stucco served as an entrance. The building is practically intact. It is conjectured to have been the secret meeting place of a neo-Pythagorean society.

In the Golden House of Nero a number of beautiful little paintings in perfect preservation have been

found. One series consists of panel pictures with figures against a dark blue background. There are traces of gilding. On the Palatine a beautiful torso of Pentelic marble came to light. It represents a youthful female figure with drapery blown back by the wind moving rapidly to the right. It appears to be an original Greek work of the end of the fifth century B. C. In the Via Po a large and important Hellenistic relief was found in 34 pieces. It represents a four-horse chariot rising from the sea. Marine animals assist in pushing it from behind, while two youths are making it fast on shore. Other figures are in the background.

At Ostia the excavation of the House of Diana was completed. It covered an area of 900 sq. m., was at least four stories high, and is still preserved to a height of seven meters. The principal floor was the second. On the outside of the ground floor were shops. The house was built in the second century A. D. and was occupied for more than 100 years.

Necrology.—Two classical archæologists of distinction have died since the last notice in the *YEAR BOOK*, Prof. James R. Wheeler, of Columbia University (died Feb. 9, 1918) was chairman of the managing committee of the American School of Classical Studies in Athens from 1901 to the time of his death. Dr. Richard Norton (died Aug. 1, 1918) was in charge of the American excavations at Cyrene and had had a part in most of the archæological undertakings of the American schools in Athens and Rome for the past 25 years.

Bibliography.—Three important books have been published: J. D. Beasley, *Attic Red-figured Vases in American Museums*; Roy C. Flickinger, *The Greek Theatre and Its Drama*; and Joseph Clark Hopkins, *A Handbook of Attic Red-figured Vases*.

MUSIC

FREDERICK H. MARTENS

General Survey.—In spite of continued economic unrest the revival of interest in music since the signing of the armistice has been marked. The keynote of this revival has been

American music for America, admirable if actual value and not mere patriotic inflation serves as the norm of progress. Through the war the position of the American composer

and musician in his own land has improved. The fight is still waged against German music, though the broader liberal spirit of England no longer makes Bach, Beethoven, or Wagner responsible for the Germany of 1914-18. But, although the fiasco of an attempted season of opera in German in New York may be looked upon as a deserved rebuke to the personalities of some of the artists who infused a purely musical issue with objectionable aggressive Teutonic particularism, the persecution of an artist like Kreisler, whose conduct has been irreproachable, must be deplored. The English standpoint (we might profitably adopt it) is well expressed by Ernest Newman: "We must listen to all music—friendly, neutral, enemy—with open ears and an open mind, and with the application of precisely the same acid test to it all."

Features in the general revival of music in the United States have been the bill for a National Conservatory introduced by Senator Fletcher in May, with provision for a Secretary of Music and Fine Arts as a member of the Cabinet; Congressman J. Kahn's bill introduced in August for a repeal of taxation on theater and concert-hall tickets; the foundation of a million-dollar auditorium in honor of her soldier dead by Memphis, Tenn.; the underwriting by St. Paul, Minn., of its new municipal chorus and by Philadelphia of its symphonic orchestra; and the extension of the community-music movement throughout the United States in the form of community choral groups, bands, orchestras, and operas. The war added 7,000 "war compositions" to the Congressional Library in Washington. A. D. Juillard bequeathed \$20,000,000 for the establishment of a musical foundation in America.

Opera.—Opera has flourished during the year just passed. In January F'evrier's *Gismonda*, musically effective but unconvincing, and Catalani's *Loreley*, a fluent Italian score, were successfully presented in Chicago. In February at the New York Metropolitan the late Xavier Leroux's *La Reine Fiammette*, "sapless and soulless," hardly achieved a *succès d'estime*. The same composer's *Che-*

mineau (Chicago, also February) found more favor. The revival of the Riceis' *opéra buffa Crispino e la Comare* in New York won greater success than its melodic ineptitude deserved. Early in March came a revival of Gounod's charming pastoral opera *Mireille*, and on March 19 three new "American" operas were produced at the Metropolitan Opera House in New York. J. C. Breil's one-act score *The Legend* was so crude, trifling, and commonplace that its production did distinct disservice to the cause of American opera. *The Temple Dancer*, by Hugo, also in one act, was sincere and well written, though not showing much originality. Charles Wakefield Cadman's *Shanewis*, probably the best American opera since *Natoma*, was welcomed as an old friend. A gala performance toward the end of the month marked the silver jubilee of Enrico Caruso on the operatic stage. Summer opera included: a spectacular production of *Aida* in the Greek Open Air Theater of Berkeley, Cal.; regular repertory opera at Ravinia Park, Chicago; and many incidental productions, such as Will C. Macfarlane's attractive Napoleonic score *Swords and Scissors* at Portland, Me. On Nov. 17 *Tosca* opened the fall season at the New York Metropolitan. The following evening the triumphant first performance in America of Montemezzi's *La Nave*, conducted by the Italian composer, took place at the Chicago Opera House. Of Metropolitan revivals, Harlévy's *La Juive* was beautifully presented toward the end of November. Henry Hadley's *Cleopatra*, based on Théophile Gautier's *Une Nuit de Cléopatra*, will be the season's American opera. The foreign novelty, Albert Wolff's *Bluebird*, was scheduled for production during Christmastide. The Chicago Opera Company will stimulate operatic Americanism by the production of a *Rip Van Winkle* by Reginald de Koven, and will also produce the ultra-modern Russian Serge Prokofieff's *Love of the Three Oranges*.

Music in Europe.—Despite the fact that in Europe the armistice has served as a prelude to new wars, to widespread unrest and a general economic disequilibrium, music is

again coming into her own. On Oct. 10 Richard Strauss's new opera, *The Woman Without a Shadow*, scored an unparalleled success in Vienna, a freezing and starving city. The story by Hoffmannsthal draws on Oriental legend: the score is said to be a mixture of *Elektra* and *Ariadne*, with elements of a more popular order added. Symphony, choral, and chamber-music concerts and recitals are numerous in Vienna as in Berlin, where the Prussian and South German nobility is financing the erection of a new International Opera House, though concert tickets are sold in the same capital on a "socialistic" basis. At the Prinzregent Theater in Munich, Hans Pfitzner's new opera *Palestrina* recently scored a success. In Paris, though *Opéra* and *Opéra-Comique* recently shut down because of a strike, four symphony orchestras are giving concerts, and there have been recitals galore. Notable Parisian operatic events during the year were the successful performance of Fauré's *Penélope* at the *Opéra-Comique* in February, and in June that of Max d'Olonne's *Le Retour*, a lyric drama, metaphysical and mystical rather than emotional. Covent Garden and Drury Lane's first post-bellum seasons of opera have been successful ones, Ethel Smythe's *The Boatswain's Mate*, *Boris*, *Coq d'Or* and *Figaro* standing out in the Beecham company's performances. As in France, concerts of every description have been numerous in England, including a Beethoven Festival in May. In Stockholm, in Petrograd and Moscow under Soviet rule, in Holland, and in Spain music seems to have been increasingly cultivated. Tokio had its first opera season, a Russian company giving standard works with great success. The general musical situation in Europe offers analogies to that existing at the close of the Napoleonic wars, with an even greater degree of musical activity considering the more unsettled economic and political conditions.

Community, Pageant, and Choral Music.—Community sings toward the end of the demobilization period have found more general acceptance in industrial centers. Whether community singing is a panacea for industrial

unrest and labor discontent it is perhaps too early to say. Notable community singing events of the year were: the Community Musical Triology at Boston in February, 17,000 participating in the festival given to raise money for the "Returning Soldiers and Sailors Job-Finding Fund"; the "Americanization" concerts on Boston Common; the Buffalo Community Chorus festival of drama, music, and dancing entitled "The Will of Song" (May); the Terre Haute department stores' community choruses, singing by employees resulting in direct industrial returns; the adoption by Peoria, Ill., industries of community sings; the "shop sings" in Cleveland, Ohio, Chester, Pa., and in numerous other industrial centers. Singing of this type is a socializing and democratizing force, yet sooner or later music no longer "soothes the savage breast" and cannot be made to do duty for an increase in wages. (See also XIV, *Recreation*.)

Among pageants, masques, etc., were: *Life before Eden*, San Francisco Bohemian Club in June, a prehistoric play of symbolism and mystery; in August the pageant *The Spirit of Democracy*, a community performance given in St. Paul, Minn.; and in Minneapolis during the same month, a pageant, *The Pied Piper of Hamelin*, given by 600 school children. *The Pageant of Minnetonka*, a town in the same state, offers another instance of the spread of pageantry in the Middle West. The Wayne, Neb. music festival of 1919 also included a community pageant, *Uncle Sam's Visit*; and in June, Columbus, Ohio, was stirred by the distinctively Methodist pageant *The Wayfarer*, a production involving a chorus of 1,200, a trombone choir of 100, and an orchestra of 75, plus a pipe organ: most of its music was borrowed from *The Messiah*. More academic were: the Dennison University, Granville, Ohio, masque, *In Time's Garden*, music by Karl Eschman, in June; the 1919 Leland Stanford University pageant *Service*, presented in the same month; and Arthur Farwell's pageant *California, a Masque of Song*, produced in May by the students of the University of California.

At the Bethlehem Bach Festival

the B-minor Mass and the cantatas presented by Dr. Wolle were sung with even more than usual excellence. At the Chicago North Shore Festival Elgar's *Dream of Gerontius* and Lutkin's *Hymn of Thanksgiving to Victory* were the choral events. At the Ann Arbor Festival Stanley's *Fair Land of Freedom* and Henry Hadley's *Ode*; at the Fitchburg Festival Coleridge-Taylor's *Hiwatha's Wedding Feast*; and, at the Keene Chorus Club's Festival Deems Taylor's *The Highwayman*, were features. Of musical interest has been the singing of the Vatican Choirs, which have been touring the country. The folksong note has been emphasized in the programmes of the Schola Cantorum of New York—old Spanish, sacred and secular songs, Russian, old English melodies; in the Schumann Club concerts of seventeenth-century Italian songs; and in numerous presentations of Negro spirituals as transcribed by Burleigh and Dett.

Symphonic and Chamber-Music.—The year has witnessed the production of a number of American orchestral novelties. The Litchfield County Choral Union Festival introduced Edgar Stillman Kelly's *Alice in Wonderland*, pantomimic pictures for orchestra, an essay in musical humor. James P. Dunn's fine dramatic *Intermezzo*, from his opera *The Galleon*, was heard in May, (Newark Festival). Edward Burlingame Hill's poetic symphonic suite *Stevensonia* was played by the same organization in April; Henry Hadley's overture *Herod*, by the Orchestral Society, New York, in March; and the young Texan Harold Morris's *Tone Poem*, orchestrally skillful but musically dull, by the New York Philharmonic in the same month. Frederick Stock conducted the Chicago Symphony Orchestra in his own *March and Hymn to Democracy* in his reinstatement concert of March 1. As early as February Stokowsky's Philadelphia Orchestra had presented T. Carl Whitmer's ballet suite, *A Syrian Night*, music of a very modern cast, in Pittsburgh; and in April the Boston Symphony gave Arthur Foote's suite of *Four Character Pieces*, after the Rubaiyat, straightforward music, faintly Oriental. Important new

works by Americans were heard at the College of the City of New York Stadium concerts during August: A. Walter Kramer's distinctive and beautiful symphonic *Rhapsody* in F-minor, "ingenious in contrivance, sensitive in color, and free from luxuriant indiscretion"; G. Aldo Randegger's *Suite* from his opera *The Promise of Media*; Frank E. Ward's *Ocean* rhapsody and *Peter Pan* scherzo; and Samuel Gardner's *New Russia*, played by the Volpe Orchestra. Stransky presented at his first November concert Bernard Roger's *To the Fallen*, a sincere and expressive miniature tonepoem in elegiac vein, full of promise as a first orchestral work. The second Berkshire Chamber Music Festival brought forth some notable works: a *Pastorale* by Daniel Gregory Mason, for clarinet, viola, and piano; a *Trio* in E-minor by Leo Sowerby, for flute, viola, and piano; and Ernest Bloch's inspired suite for viola and piano.

Literature.—The year's list of musical literature includes Kathleen Howard's *Confessions of an Opera Singer* (Knopf), dealing with the author's study and stage experiences in France and Germany, and Sir George Henchel's *Musings and Memories of a Musician* (Macmillan), life reminiscences of the English singer and composer. In V. R. Key's *John McCormack: His Own Life Story* (Small) the famous tenor is depicted by a devoted Boswell. In reminiscent vein is Gerald Cumberland's *Set Down in Malice*, a frank book of chat anent musicians, actors, critics, etc. (Brentano). Gianni Viafora's clever *Caricature* (Brentano) is a series of delightful comic sketches of musical personalities; Carl Van Vechten's *The Music of Spain* (Knopf), a compilation of opinions on Spanish music; and Olin Downe's *The Lure of Music* (Harper) makes the lives of great composers interesting to the average reader. One of the year's most enjoyable exploitations of a specific musical locale is William Arms Fisher's *Notes on Music in Old Boston* (Ditson), a charmingly narrated story of early days of music in Boston. Henry Edward Krehbiel's *More Chapters of Opera* (1908-1918) comprises 460 pages of operatic

reminiscences (Holt). Percy A. Scholes, *The Listeners' Guide to Music* (Oxford Univ. Press) offers as a "concert-goer's glossary." New works on harmony include: Dr. A. Eaglefield Hull's *Harmony for Students* (London, Augener), a sensible treatise of practical value, and Franklin W. Robinson's *Aural Harmony*, Pt. I (Schirmer), a progressive book, based on ear-training experience. Karl W. Gehrkens's *Essentials in Conducting* (Ditson), has the amateur, the school supervisor, community-chorus and boy-choir conductor especially in view. The violin receives attention in the well known teacher Eugene Gruenberg's valuable *Violin Teaching and Violin Study* (Carl Fischer) and Frederick H. Martens' *Violin Mastery* (Stokes), interviews with the great violinists of the day in which they cover every phase of their art in intimate talks. The late Gustave Kobbé's *Complete Opera Book* (Putnam) is copious, worked out on sound historical basis, and gives 400 musical themes aside from other illustrations.

Necrology.—Among those prominent in the world of music who died during the year were: in January, at Rome, Rudolfo Ferrari, Italian conductor; R. W. Heffelfinger (Jan. 10, Los Angeles), well known music publisher; Herwegh von Ende (Jan. 13, New York), prominent as violinist, teacher, and in the field of chamber music; Howard White (Jan. 22, New York), young American basso; Marie Bobellier ("Michel Brenet"), in Paris, well known writer on musical subjects. In February passed away Xavier Leroux (Feb. 3, Paris), widely known French operatic composer (*Cléopâtre*, *William Ratcliffe*, *L'Epave*, *La Reine Fiammette*, his most popular score *Le Chemineau*); Bessie Abbott (Feb. 9, New York), for some years one of America's leading opera singers; Rudolph Aronson (Feb. 4, New York), prominent in New York as musical and theatrical manager and composer. In March died Christopher Wilson (March 1, London), English composer of incidental music (Shakespearean productions); Edward A. Rockwell, art and musical editor of the *Brooklyn Eagle* (March 9, Brook-

lyn); Frederick Gilbert Bourne, financier interested in music (\$500,000 to Cathedral of St. John the Divine choir school); Dr. Frank Reader Rix (March 16, New York), for 25 years supervisor of music in the New York public schools; Amy Woodforde-Finden (March 13, London), English song composer ("Four Indian Love Lyrics"); W. W. Andreff, Russian musician, introduced the *balalaika* in orchestral ensemble in England and America. In April died Dr. Jacob Reinhardt (April 25), prominent musician, organist, and teacher of Richmond, Va.; Camille Erlanger (April 24, Paris), French opera composer (*St. Julian l'Hospitalier*, *Le Juif Polonais*, *Le Fils de l'Etoile*, *Barkokeba*, *Aphrodite*, *La Sorcière*); Imre Kilrafy (April 27, Brighton, England), organizer of pageant and spectacular productions. In May died Charles E. Van Laer (May 4, Rochester, N. Y.), well known pianist, organist, and teacher, and Robert Stuart Piggatt (May 7, London), English baritone and actor. In June died Manuel Klein, composer of several good comic operas, conductor of the New York Hippodrome (June 1, New York); Charles P. Tower (June 1, East Orange, N. J.), music critic for New York and Boston papers; Edgar H. Sherwood (June 1, Rochester, N. Y.), teacher and composer; Luigi Sertori (June 24, New York), grand opera singer. In July died Ernst Wollett, Chicago 'cellist, and William Brown Hammond (Providence, R. I.), blind teacher and composer. In August died Charlotte Walker (Aug. 1, Hillside, N. J.), prominent American operatic soprano in days of American and Hinrichs opera companies; Oscar Hammerstein, (Aug. 1, New York), famous operatic impresario; Richard Epstein (Aug. 1, New York), pianist, conductor, editor, and teacher; Ruggiero Leoncavallo (Aug. 9, Rome), famous Italian operatic composer (*I Medici*, *I Pagliacci*, *La Bohème*, *Zingora*, *Zaza*, *Roland von Berlin*); Rudolph E. Schirmer, distinguished American publisher, founder of the *Musical Quarterly*, a music lover of discriminating taste and high ideals (Aug. 20, Santa Barbara, Cal.). In September died Mme. Michi-ko Hara, noted

Japanese pianist, in Tokio; Edward F. Johnston, (Sept. 4, New York), prominent New York organist and composer of amateur operettas; Julia Heinrich (Sept. 18, Hammond, La.), operatic soprano of distinction. Charles H. Steinway, head of the famous piano firm of Steinway & Sons passed away in New York on Oct. 30. In November died Adelina Patti (Nov. 27, Craig-y-Nos, Wales), for two generations queen of the world of song, and Major Henry Lee

Higginson (Nov. 14, Boston), founder and maintainer of the Boston Symphony Orchestra. Horatio W. Parker died at Cedarhurst, L. I., on Dec. 18; a leading American composer: oratorios, among them the famous *Hora Novissima*; operas, *Mona*, *Fairyland*, songs, etc.; professor of theory of music at Yale University. Cleofonte Campanini, operatic conductor, director-general of the Chicago Opera Co. and formerly of the Metropolitan, died at Chicago on Dec. 19.

THE DRAMA

LOUIS V. DE FOE

The Actors' Strike.—A survey of the drama during 1919 must take into account at the outset the most remarkable economic upheaval that has ever occurred in any of the artistic professions in the United States. On Aug. 8, following seven months of prosperity never before equaled in the theater in America, came the actors' strike. Timed to interrupt the elaborate preparations for the autumn dramatic season which promised even greater prosperity, it continued 30 days, during which all the complicated machinery of the native stage was brought to a complete standstill. In New York it peremptorily closed 25 theaters and prevented the opening of 15 more on their scheduled dates. One company independent of the Producing Managers' Association survived during this period, and one other company allied with the managers' organization continued, with slight interruptions, to give inadequate performances of an inferior melodrama, but with these exceptions the operation of the legitimate dramatic stage was wholly suspended. Boston, Chicago, Washington, Philadelphia, and other cities were similarly involved, depending on the number of their theaters. In New York alone the losses to all parties affected by the strike were conservatively estimated to have exceeded \$3,000,000.

The strike in the acting profession had only distant, if any, relation to the widespread industrial unrest. The question of the wage paid to actors entered into the controversy only slightly. The paramount issue was

their demand for a standard contract and the recognition of their right to bargain collectively, a right which the managers had, on their side, asserted and practiced for more than 20 years.

The formation of the Actors' Equity Association in 1913 was the first organized effort of the actors to resist the arbitrary dictum of the managers. It drew a standard contract providing for pay for actors after a certain period of rehearsals, guaranteeing employment for a certain time after plays reached a public performance, stipulating *pro rata* extra pay for performances in excess of the regular number of eight a week, and establishing a method of arbitration in cases of dispute, the appealing actor to be represented by the Equity Association. Some of the managers approved this contract, but it was disregarded by the majority and finally came to be generally ignored. In May, 1919, the actors became insistent, demanding that all the questions involved be submitted to arbitration. The managers then assumed an arrogant attitude and formed a new protective association which resisted the advances of the actors. In July the Actors' Equity Association joined the American Federation of Labor, and a strike to enforce its demands, the membership having increased to about 9,000, became inevitable.

Shortly after the strike was called, the unionized theatrical stage hands and musicians began a sympathetic strike, and all open theaters were promptly closed. An attempt to disrupt the Actors' Equity Association

by the formation of the Actors' Fidelity League failed in its purpose, and then the Producing Managers' Association yielded to the pressure of organized labor and capitulated, recognizing the principle of collective bargaining and conceding more than the actors had originally demanded. (See also XV, *Labor*.)

The merits of this unique strike, which was joined by the most prominent and highest-paid celebrities in the stage profession, are not a subject for discussion here. But the strike itself had the sympathy of the public and press, and it was followed with the keenest interest. It seriously affected the actors' social clubs, disrupted long friendships and engendered temporarily great personal bitterness, but it resulted in no discernible permanent harm to the theater as an institution. It was an upheaval that might easily have been avoided if the capitalists who control the commercial theater had exercised reasonable tact and forbearance.

The Theatrical Year.—In spite of this hostile interlude the American theater—a distinction must here be drawn between it and the American drama—enjoyed during 1919 a period of material prosperity unprecedented in this country and unrivaled anywhere else in the world. With the relaxation of nervous tension after the armistice came a mania for theatrical entertainment of every kind. Public patronage vastly exceeded the seating capacity of the theaters, not only in New York but elsewhere, with the result that managers yielded to the temptation of profiteering, and grotesquely inflated admission rates became the result. Plays were eagerly attended, irrespective of their artistic quality or value as entertainment, and this indiscriminate patronage had the inevitable effect of lowering the ideals of the managers and depressing the standard of stage entertainment.

Throughout the war the American theater, owing to its distance from the scene of actual conflict, had occupied an enviable strategic position. In every European country involved in the struggle, creative effort on the part of dramatists was stifled, and practical work in the theater was

either destroyed or seriously impeded. Here, however, dramatic art and all that makes possible its public manifestation were practically untouched, while the country's material prosperity insured adequate support of sincere effort in behalf of worthy and intellectual plays. Leaders in the theater's art abroad would gladly have availed themselves of an opportunity to continue their work here if they had been encouraged to come, and our native authors and experimenters, if they had been restrained by finer taste on the part of those who have obtained a commercial monopoly of the theater, would doubtless have responded with genuine effort to fulfill higher ideals. In short, the most inviting field for the drama of the world during five years lay in the theater of the United States.

But the native managers, especially during the last year, threw away this glorious opportunity for a better stage. They chose to take advantage only of the chance that presented itself to profit by the theater's commercial prosperity. The dramas they produced, with few exceptions, were selected for the purpose of appealing to the greatest range, which must inevitably mean a low average, of the public taste. Their efforts and their energies were to satisfy the increased craving for idle and ephemeral amusement, with the result that they generally discouraged and often disgusted intelligent and dependable patrons of dramatic art. Great fortunes undoubtedly were made during the year, but the standard of the stage also undoubtedly suffered.

Since practically all plays acted in this country are intended ultimately to meet the test of performance in New York (which is a doubtful criterion of their value, owing to the heterogeneous audiences of the metropolis), the record of its so-called producing theaters furnishes the most accurate means of gauging the drama's accomplishment during the year (from Dec. 1, 1918, to Dec. 1, 1919). For purposes of comparison the plan of reckoning adopted in the *YEAR BOOK* for 1918 (p. 762) will again be followed. In the 50 theaters that come under this classification there were produced in the Eng-

lish language 122 new plays, musical comedies, and spectacles of normal length. One-act plays became almost negligible, as only four such new works were presented in regular theaters, thus completely verifying the prediction in their case made a year ago (*A. Y. B.*, 1918, p. 763). No revival of a modern or semi-modern drama that has been accepted into the body of the theater's permanent literature was attempted, and the classics were again neglected, save for notable revivals of "Twelfth Night," "Hamlet," and "The Taming of the Shrew," which brought about the return of Julia Marlowe and Edward H. Sothorn to the stage, and a succession of performances of "Hamlet" undertaken by Walter Hampden under the auspices of the Shakespeare Playhouse. Only one independent company outside the commercial organization of the native theater, the Theater Guild, justified its pretensions to artistic importance.

Classification of Plays.—An arbitrary classification of the year's plays is almost impossible for the reason that dramatic authors generally now disregard the old laws of form and write in a mixture of moods and styles. But drawing a distinction between plays of serious intent and those of humorous purpose, and grouping melodramas and farces separately, the year afforded 23 dramas, 32 comedies, 14 avowed melodramas, and 16 farces. These, with 37 musical comedies and spectacles, comprise the total of 122 productions already noted. The total number of new plays fell eight below the record of the preceding year (*A. Y. B.*, 1918, p. 762), due partly to the interruption caused by the actors' strike and partly to the public's indiscriminating taste, which permitted longer runs of poor entertainments. The theater's lack of serious purpose was reflected by a decrease of 14 in the number of dramas, while the comedies, melodramas, and farces all showed a substantial increase. There were also three more musical productions than in the preceding year. The significance of these figures is that the public's demand for lighter entertainment, especially in New York, where the theaters are patron-

ized largely by a transient population, is gradually increasing.

Another phase of the year's record must be taken into account in drawing conclusions as to the present state of the drama. Of the 85 new prose plays which were produced, 67 were written by American dramatists and 18 were of foreign authorship. Compared with the theater's record a year ago (*A. Y. B.*, 1918, p. 763), there was an increase of two in the former and a decrease of nine in the latter, indicating presumably the suspension of creative effort abroad. On the other hand, plays by American authors were elected in greatly increased numbers in the theaters of Great Britain. Of the list of musical comedies and spectacles, 35 were by native composers and only two by foreign composers. This disparity indicates the great antipathy still felt for the stage products of the Teutonic Empires, from which our musical-comedy productions in the past have largely been drawn.

Notable Plays.—In spite of this great preponderance of native over foreign plays during 1919 it is not a little discouraging for well-wishers of the American theater to reflect that the most notable dramas, intellectually and artistically, came to us from abroad. In this limited group of the elect stood unquestionably "John Ferguson" by the Irish dramatist, St. John G. Ervine. It was in effect an ironic domestic tragedy, dealing grimly and gloomily with the lives of a North Ireland Protestant household, fettered to a narrow and relentless orthodoxy. Its characters were vividly and freshly drawn, its application to life was broad and direct, and its dramatic conflict was powerful and constant. It was, moreover, ably produced by the Theater Guild, an independent organization which is an outgrowth of the Washington Square Players. Another foreign play of fine texture was Sir James Barrie's "Dear Brutus," which disclosed itself as a comedy of rare and charming fancy and deep and true feeling. Although it fell slightly below the plane of Barrie's best previous work in point of imagination, it was nevertheless an ornament to the dramatic year, and a great public

during its long run appraised it as such.

On an ignoble theme, but exceptional, nevertheless, for its dramatic effectiveness, graphic vigor, stirring picturesqueness, and exciting, red-blooded interest, was "The Jest," rearranged by Edward Sheldon from the Italian of Sem Benelli and dealing with the period of the Medicis in mediæval Florence. Although melodrama of not very exalted imaginative grasp, it was the means of bringing much histrionic distinction to John and Lionel Barrymore in its two leading rôles. A second notable contribution by the Irish literary theater was "The Lost Leader," an austere and well written drama by Lennox Robinson, dealing with the character of Charles Stewart Parnell who was imagined to be still living. Its purpose was to suggest a way to the settlement of Ireland's political problems. Its defect as a play was that its dramatic interest diminished as it proceeded, though it was consistent throughout in its studies of Irish character and in the literary texture of its writing.

In a contrasting mood of romantic fancy and exotic interest was "The Faithful," a tragedy by the English poet, John Masefield, based on an ancient Japanese legend and presented by the Theater Guild. This play undeniably had a superfine quality, though a somewhat defective interpretation clouded its real worth. The single work by an American author that can properly be included in this group of the year's most notable plays was Booth Tarkington's "Clarence," which was exceedingly diverting in its original observation and whimsical humor, adroit in its technical workmanship, and fluent in its literary style. Its insight into the amusing impulses and aspirations of adolescence was almost uncanny, and its performance came close to perfection.

Another group of seven plays, all except one by native writers, followed a short distance behind these outstanding works. Augustus Thomas was represented in this list by "Palmy Days," a sturdy, well written and interesting comedy of the "gold days" in California, in which Wilton Lackaye gave a distinguished per-

formance. "The Son-Daughter," a melodrama by George Scarborough and David Belasco, Chinese in story and characters but with scenes laid in New York, revealed the realistic method of Mr. Belasco as a producer at its best and afforded an effective heroine rôle for Lenore Ulric. The varied moods and slightly eccentric humor of Mrs. Fiske's acting made delightful "Mis' Nelly of N'Orleans," a comedy of whimsical and fantastic interest by Laurence Eyre. Two exceedingly clever though fragile comedies, both uncommonly well acted, were "Wedding Bells" by Salisbury Field and "Adam and Eva," a collaboration by Guy Bolton and George Middleton, and both were amply supported by a public that does not look for seriousness in the theater. There was also "Déclassé," an emotional drama of supposedly English life and character, by Zoe Akins, the value of which was somewhat exaggerated by the really superb acting of Ethel Barrymore in its well conceived and minutely analyzed heroine rôle. The single foreign play in this list was Lord Dunsany's "The Tents of the Arabs," on the theme of the dissatisfaction of all men with their appointed lot. It had imaginative quality and literary distinction, but it was considerably inferior to the Irish dramatist's best one-act plays.

Trailing at a respectful distance behind these two groups came the year's so-called "popular successes" and other plays which, though less enduring, gave evidence of ability of certain kinds. These, generally, are the type of plays which the commercial theater systematically fosters and which our industrious native authors supply in constantly increasing quantities. Nor are such plays ordinarily devoid of considerable merit. Although roughly written, they are often photographically true to the life they represent, amusing, and of ingenious construction. They are, however, analogous to the "best seller" of printed fiction and seldom merit close critical appraisal. The group of about 17 contained five of foreign authorship. A popular example of the native brand was "East Is West," a Chinese romance by John E. Hymer and Samuel Shipman.

Two more which gained importance from their expert productions were "Dark Rosaleen," an Irish comedy written on an old model, by W. D. Hepenstall and Whitford Kane, and "The Gold Diggers," a comedy of chorus-girl life, by Avery Hopwood; both these were produced by David Belasco. Two others of photographic exactness and well contrived sentimental interest were the long popular comedies by Rachel Crothers, "A Little Journey" and "39 East." "Toby's Bow," a romance of Virginia, containing a beautifully drawn character of an aged darky house-servant, acted by George Marion, with rare comprehension, was written by John Taintor Foote. "His Honor, Abe Potash," a continuation of Montague Glass and Jules Eckert Goodman's "Potash and Perlmutter" series, presented another humorous phase of the irascible, shrewd, but kindly and benevolent Jew which has seemingly become second nature to Barney Bernard, its creator in the theater. "Moonlight and Honeysuckle" was an interesting sentimental comedy by George Scarborough, in which Ruth Chatterton appeared to advantage in a lovely production by Henry Miller. Mr. Miller himself acted in "Molière," a costume comedy based on the life of the French dramatist and actor, ambitiously written by Philip Moeller. There were also, among the popular melodramas, "The Challenge," dealing with an industrial theme, by Eugene Walter, and "A Voice in the Dark," a cleverly constructed melodrama by Ralph E. Dyar.

The five foreign contributions to this list of plays that deserve recognition, though none had the popular attributes of most of the native products, included "The Burgomaster of Belgium," a war drama by Maurice Maeterlinck, and vastly inferior to the Belgian mystic's best work; "The Bonds of Interest," a fantastic, romantic comedy translated from the Spanish of Jacinto Benavente; "The Marquis de Priola," an unsavory early work of the French author, Henri Lavedan, adapted into English by Leo Ditrichstein who appeared in

its title rôle; and two domestic comedies by the prolific English dramatist, W. Somerset Maugham, entitled "Too Many Husbands" and Cæsar's Wife."

The conclusion to be drawn from the course of events in the American theater in 1919 is that the commercial managers, who now almost absolutely control the native stage, grossly underestimate the intellectual capacity of the drama's patrons. The plays alluded to in this survey as notable or of relatively high artistic and literary importance were, without exception, generously supported by the public. Several, indeed, had been long ignored by the managers with whom under present conditions the welfare of the American theater rests. These men regard the classic and literary drama lightly. Most of them are wholly unfamiliar with it. They deny that there is a definite demand for the great works of poetic dramatic literature from the theater's most dependable patrons. Yet it is significant that the trio of Shakespearean revivals made by Julia Marlowe and Edward H. Sothorn, with simple impressionistic backgrounds of draperies, were more eagerly attended and more enthusiastically applauded than the most popular modern dramas produced during the year.

The exclusion of the standard and classical drama from the native stage is rapidly affecting the quality of acting. Pure elocution is disappearing among the lost arts. Our actors cultivate the trick of presenting character photographically and literally, but they constantly bring less imagination and inspiration into their work. Although there are always commendable, sometimes genuinely distinguished, dramas to be found in the American theater, the plane of its total artistic accomplishment is deplorably low. As a fine art the stage cannot progress to a healthy state until it is directed for a higher purpose than to please only the average taste and, therefore, best serve the commercial considerations of the box office.

XXIX. LITERATURE AND LANGUAGE

AMERICAN LITERATURE

(Nov. 15, 1918, to Nov. 15, 1919)

EDWARD EVERETT HALE

Book Production.—It is probable that the production of books in the United States would have been larger in 1919 than ever before had it not been for labor troubles, particularly the New York printers' strike, which began at the end of September and for seven weeks hindered production and distribution to a very great degree (see also XV, *Labor*). The total number of books (including pamphlets) published in the United States in recent years has been:

1914	8,563
1915	6,932
1916	8,430
1917	8,820
1918	9,237

The total for 1919 cannot be accurately estimated at the time of writing, chiefly because the printers' strike has interfered with the compilation of the figures. It may be estimated, however, at about 8,000.

Fiction.—Although very vigorous, American fiction in 1919 has not been as interesting as often, partly because of the intrusion of attractions from the outside and partly because of its own failings. Joseph Conrad's *The Arrow of Gold* was enough to discourage many readers and writers of domestic drama, and the extraordinary popularity of the novels of Blasco Ibañez must have had a more distinct and more general effect. Even lesser matters, like the publication of the works of Leonard Merrick, issued with prefaces by other distinguished men of letters, or the choice by Mr. Galsworthy of the *Cosmopolitan* as a vehicle for reaching the American public, may have reduced the demand and thus affected the supply of the native product. The figures of production of books classified in the pub-

lishers' reports as fiction by American authors is as follows:

1914	689
1915	643
1916	703
1917	707
1918	594

For 1919 we estimate the figure at about 600.

Aside from these rather mechanical details, the chief matter of annual interest in American fiction has been for many years the production or recognition of some novel which was a thoroughly satisfying expression of the real vitality and vigor of America. Unfortunately one of the best accredited authorities on the subject will not give its judgment for 1919 until long after the YEAR Book has gone to press. We mention, therefore, the award of the Pulitzer Prize for the year 1918, although the novel selected is not included in our survey. The award of \$1,000 for "the American novel which shall best present the wholesome atmosphere of American life and the highest standard of American manners and manhood" was made to Booth Tarkington for *The Magnificent Ambersons* (A. Y. B., 1918, p. 796), which was certainly a readable and "worth while" book. There were probably some who thought Mrs. Watts's *The Boardman Family* quite as good a picture of sane and wholesome American life, and some who felt that Miss Cather's *My Antonia* was a more beautiful piece of work than either, whatever was to be said of the life which it presented. But most novel readers will have been well pleased with the award. When it comes to 1919, it is hard to predict what the award will be. Mr. Tark-

ington's *Ramsey Milholland* (Doubleday, Page) may win the prize for him again, for it is a very popular book, and we will not suggest anything else. It may be said, however, that the year's fiction does not include any novels of American life by those who have been thought heretofore most competent to write them. A lot of American novels that has nothing by Mrs. Wharton, Miss Canfield (as she is still called on her title pages), or Miss Cather cannot have the best that we can do, except by the happy chance of some one's emerging who would not previously have been thought of. Sherwood Anderson and Theodore Dreiser come to mind in this connection, though neither has published what could technically be called a novel. Sherwood Anderson's *Winesburg, Ohio* (Huebsch) has so much real feeling for American life and character that one wishes it were a real masterpiece. It lacks constructive power, however, being made up of sketches and stories some of which appeared a good while ago in *The Seven Arts*. It is also too much marred by boyish and sensual fancies to be thought of as a masterpiece. But it does give something which it is better to catch in the tavern than to lose outright even in the temple. It would not be long thought of by one in search of the most wholesome manners and manhood of America, but it does at least suggest that possibly the best pictures of American life and manners can not be entirely sane and wholesome. Mr. Dreiser in the past has not shown much constructive power and he too has suffered from the imputation of sensuality, but his *Twelve Men* (Boni & Liveright) has neither of these faults. These stories have the characteristics of his best work, being founded on wide knowledge and presented with unflinching realism.

Besides these books that have something out of the ordinary about them, there are many others that are good in the well known way that most of us like. We offer a list of what may fairly be called "studies of American life," though a number of them are too highly charged with excitement of divers kinds to allow us to rely on the view presented: Henry G. Aik-

man, *The Groper* (Boni & Liveright); Josephine D. Bacon, *On Our Hill* (Scribner); Mary H. Bradley, *The Wife of Astonishment* (Appleton); Alice Brown, *The Black Drop* (Macmillan); Zona Gale, *Peace in Friendship Village* (Macmillan); Ellen Glasgow, *The Builders* (Doubleday, Page); Daniel C. Goodman, *The Taker* (Boni & Liveright); Will N. Harben, *The Cottage of Delight* (Harper); Joseph Hergesheimer, *Linda Condon* (Knopf); Arthur Hodges, *The Bounder* (Houghton, Mifflin); Julie M. Lippman, *Flexible Ferdinand* (Doran); George Barr McCutcheon, *Sherry* (Dodd, Mead); Grace S. Mason, *His Wife's Job* (Appleton); Christopher Morley, *The Haunted Bookshop* (Doubleday, Page); Arnold Mulder, *The Outward Road* (Houghton, Mifflin); Kathleen Norris, *Sisters* (Doubleday, Page); William D. Pelley, *The Greater Glory* (Little, Brown); Fleta C. Springer, *Gregg* (Harper); Julian Street, *After Thirty* (Century); Booth Tarkington, *Ramsey Milholland* (Doubleday, Page); Mary H. Vorst, *I've Come to Stay* (Century); Mary H. Watts, *From Father to Son* (Macmillan).

Such a list (even by its omissions) shows considerable material to choose from, but there are many more novels of a different character. The sane and healthful picture of 'American life, however desirable, is not the most popular thing just now among either the writers or the readers. The novel of "mystery, adventure, romance" is much more obvious, as always, and also more numerous. Our remark last year (*A. Y. B.*, 1918, p. 786) that this passion for excitement was the result of the war was so severely discouraged by an able literary periodical that we will not repeat it but merely wish that we could suggest something better. The fact seems to be that not only are there more stories of adventure (in all sorts of places from the now commonplace wilds of the Canadian Northwest to the romantic walks of Greenwich Village), but also more detective or mystery stories, more stories of domestic emotion, more excitement, in a word, than for several years past. The critics have noted one or two streaks, as one may say, in the general tend-

ency that seem not quite as they should be. It has been pointed out (C. M. Greene, *Bookman*) that those who have heard so much about the high imaginative and spiritual plane to which the world would be 'uplifted' by the war have been disappointed by the material, even commercial, tone of the majority of the novels of the day. Many people beside the book reviewers have wondered at similar results in other expressions of human interest. This does not prove that high imagination and true spirituality were not among the results of the war; it is more likely that such results as these have actually occurred (who can doubt it?), but that it will take some time before they can really manifest themselves in works of art, if not elsewhere. We give a list of the more obvious of the romantic novels, noting that there is much more than usual of the "lure of the untamed West," a pretty sure sign of conventionality; every story here might be described (one of them has been) as a "story of gripping intensity and unusual happenings interwoven with a splendid romance," or if not, it comes pretty near it: David Anderson, *The Blue Moon* (Bobbs, Merrill); Marion Bower and Leon M. Lion, *The Chinese Puzzle* (Holt); B. M. Bowers, *Rim o' the World* (Little, Brown); George A. Chamberlain, *Not All the King's Horses* (Bobbs, Merrill); Robert W. Chambers, *In Secret* (Doran); Dane Coolidge, *Silver and Gold* (Dutton); Ridgewell Cullom, *The Law of the Gun* (Jacobs); James Oliver Curwood, *The River's End* (Houghton, Mifflin); Zane Gray, *The Desert of Wheat* (Harper); Emerson Hough, *The Sagebrusher* (Appleton); Elizabeth Jordan, *The Girl in the Mirror* (Century); H. H. Knibbs, *The Ridin' Kid from Powder River* (Houghton, Mifflin); Jeremy Lane, *Yellow Men Sleep* (Century); Sinclair Lewis, *Free Air* (Harcourt, Brace & Howe); Caroline Lockhart, *The Fighting Shepherdess* (Scribner); F. C. MacDonald, *Sorcery* (Century); A. Merritt, *The Moon Pool* (Putnam); Roy Norton, *Drowned Gold*, (Houghton, Mifflin); A. B. Reeve, *The Soul Scar* (Harper); Vingie Roe, *Tharon of Lost Valley* (Dodd, Mead); Bertrand

Sinclair, *Burned Bridges* (Little, Brown); Charles Alden Seltzer, *The Ranchman* (McClurg); Robert Watson, *The Girl of the O. K. Valley* (Doran); Honoré Willsie, *The Forbidden Trail* (Stokes); George F. Worts, *Peter the Brazen* (Century).

As always there are a good many books which cannot be pigeonholed as realistic or romantic. Nice, more or less idyllic stories are: C. B. Kelland, *The Little Moment of Happiness* (Harper); Sidney McCall, *Christopher Laird* (Dodd, Mead); Marie C. Oehler, *A Woman Named Smith* (Century); Henry van Dyke, *The Broken Soldier and the Maid of France* (Scribner). Among the best tales of humor or extravagance so popular and so characteristic a feature of our literature are: Montague Glass, *Potash and Perlmutter Settle Things* (Harper); Wallace Irwin, *The Blooming Angel* (Doran); Peter C. MacFarlane, *The Exploits of Bilge and Ma* (Doubleday, Page); Alice Duer Miller, *The Charm School* (Harper); Harry Leon Wilson, *Ma Pettin-gill* (Doubleday, Page).

Mary Johnston, our chief writer of historical novels, may come at the end of our list with her *Michael Forth* (Harper), a story of Civil War Reconstruction which recalls some of her best work.

The obvious interest of the war is still important, though more in the periodical press than in books. The magazines continue to show great interest in war topics. A curious little controversy arose in the spring on "the *Atlantic* in war time." A reviewer of DeWolfe Howe's history of the *Atlantic* mentioned elsewhere had spoken of that magazine's "comparative indifference to the Civil War." The statement was challenged, and the reviewer, although conceding verbal indiscretion, pointed out that although there were in every number of the *Atlantic* of the Civil War several articles on war-topics there were always many more entirely untouched by it, whereas in the *Atlantic* even of the present day there are hardly any articles absolutely unconnected with the great struggle. This deep and continued interest, however, does not show itself so much in the more permanent form of books.

Not only is there less of the superficial interest in war topics, but there is less of the deeper emotion that may be supposed to have been stirred by the war. The two problems of a non-economic nature, or perhaps we should say most capable of literary treatment, that have been most deeply stirred by the war are our feelings about sex and about religion. Yet neither of these motives makes much of an appearance in the literature of the day except in a superficial or perfunctory way.

There have been published two treatises on fiction, Wilson Follet's *The Modern Novel* (Knopf) and Clayton Hamilton's *Manual of the Art of Fiction* (Doubleday, Page). These works have been described by a professional novelist (Henry B. Fuller) in two characteristic sentences. One "whirls and sweeps, aviator-like, through the thin, keen air of theory," and the other "burrows thoroughly and faithfully . . . accomplishes a good amount of serviceable earthwork and helps ventilate and rearrange the general soil." The characterization is not absolutely true to fact but points toward it.

Short Stories.—Of the short story we can, as usual, give but slight account. The mass of short stories published in the popular periodicals is so great that it is a life work to deal with it. Unfortunately E. J. H. O'Brien's *Best Stories of 1919* (Small), like a great deal else that would be useful to the maker of summaries, does not come out in time for us to use. But as we have not mentioned his studies of the work of 1918, it will not be amiss to quote an opinion which we imagine he will repeat in his book on 1919. "There has been a marked ebb this year," he remarks, "in the quality of the American short story. Life these days is far more imaginative than any fiction can be and our writers are dazed by its forceful impact." Something of the same sort, we have thought, might be said of fiction in general. Still, there have been rather more good collections of short stories (relatively) than good novels. We have already mentioned in another connection Mr. Anderson's and Mr. Dreiser's books, which are more like collections of

short stories than novels, and though they have no constructive unity, as we may say, they are conceived practically as wholes and are meant to be read as wholes. But quite as good are several others of which the following must serve as a general note. Dorothy Canfield's *The Day of Glory* (Holt) is a volume of stories suggested by her experiences in France; like its immediate predecessor, it shows her fine devotion to a cause as well as her recognized literary ability. Much the same thing might be said of Mrs. Deland's *Small Things* (Appleton); one almost regrets that these writers have been prevented by broader opportunities and the necessities of events from looking around upon their own country. E. L. White has written no novel in 1919, but his *Song of the Sirens* (Dutton) is excellent and has a substance and flavor of its own, like the rest of the work of this author. Joseph Hergesheimer's *The Happy End* (Knopf) is characteristic of the author's usual fine method. Henry van Dyke's *The Valley of Visions* (Scribner) is a collection of stories suggested by his experiences during the war.

Poetry.—Poetry continues to be a challenge to the general reader, or perhaps better an invitation to come and play, even if it be only on the cellar door in the backyard. It is perhaps too scornful and imperious to be an invitation and too gay and childlike to be a challenge, but it has the elements of both. In spite of being occasionally squalid and blasphemous (O. W. Firkins, *Nation*) and more often noisy, it has enough in the way of stronger qualities to make us rather indifferent to its weaknesses. This year Louis Untermeyer has voiced the spirit of the time in his *The New American Poetry* (Holt), and the *New Republic* during the summer made possible a good focussing of different lines of thought by publishing at one time a review of the book by Conrad Aiken with a rejoinder by Mr. Untermeyer. The two utterances presented persuasively the two tendencies which may now be observed in American poetry, as well, it may be added, as in American literature as a whole, namely, the feeling for a national and therefore a

broadly sympathetic and democratic poetry of ideas and a more definitely æsthetic poetry devoted simply to the love of beauty. It seems as if the poetry of the year was more of the latter kind than of the former. Another book on American poetry is *New Voices* (Macmillan) by Mrs. Marguerite Wilkinson, a book which has had much of the popularity it deserves and shows the popular interest in criticism and poetry, for the book is not only an anthology, but a piece of criticism as well. When it comes to mention particular books of poetry, the task seems so difficult that one wishes to shut his eyes and pick out blindly. We have not followed this course, but another, namely, the selection of something representative in as many different lines as possible, and our order of mention is surely good, being alphabetical: Conrad Aiken, *The Channel Rose* (Four Seas); Stephen V. Benet, *Young Adventure* (Yale Univ. Press); Berton Braley, *Buddy Ballads; Songs of the A. E. F.* (Doran); John Jay Chapman, *Songs and Poems* (Scribner); John G. Fletcher has published not only *The Tree of Life* (Macmillan), but has given those who like theory as well as practice "A Rational Explanation of *Vers Libre*" in the *Dial* of Jan. 11; there has been published a memorial edition of the *Poems, Essays, and Letters* of Joyce Kilmer (Doran) who fell in the war in 1918; Amy Lowell, *Pictures of the Floating World* (Macmillan); John G. Neihardt, *The Song of Three Friends* (Macmillan); Leonard Van Noppen, U. S. N. R. *The Challenge*. The best poems read before the Poetry Club of America during the season of 1918-19 were "Wooden Ships" by David Morton and "Bluestone" by Marguerite Wilkinson; the authors divided the National Arts Prize of \$250.

Biography.—No one now living had so many biographies written during his lifetime as Theodore Roosevelt. His death is so recent that no "final" biography has yet appeared, but a sort of pendant to his own account of his life has been published in a series of *Letters to His Children* (Scribner), full of the childlike spirit of real happiness and the love of the

realities of life that made him such a sympathetic companion with grown people as well as younger ones. A true and unusual light is thrown on Roosevelt's character in *Bill Sewall's Story of T. R.* (Harper). W. W. Sewall was a Maine guide who had often lived with Roosevelt in the woods and knew him in ways that others were not so likely to see. William R. Thayer's *Life of Theodore Roosevelt* (Houghton, Mifflin) is the most worthy of mention among several other lives published. Among the most characteristic of the many lives of Americans that appear every year is *An American Idyll: The Career of Carleton Parker* (Atlantic Monthly Press) by his wife. Professor Parker was a very unusual man, and this story of his life is not only absorbing and stimulating by its own vitality, but by its suggestion of ideas concerning American education and social problems. Dr. W. T. Grenfell is enough of an American for us to include his autobiography (fortunately still unfinished) *A Labrador Doctor* (Houghton, Mifflin). The most important biography of the year, however, is the *Life of Henry Fielding* by Prof. W. L. Cross (Yale Univ. Press), a remarkable work of laborious inquiry and sympathetic scholarship such as has not appeared for a long while.

Whether it come more properly under the present head or the next we are not sure, but waiving the question, we find great interest in *The Early Years of the Saturday Club, 1850-1870*, by E. W. Emerson (Houghton, Mifflin). Such records are very likely to degenerate into literary gossip, but even literary gossip about our own fathers is of value. Mr. Emerson rises above anything of the sort and gives us a valuable chronicle of one of the literary periods of our history. Of somewhat similar interest, although a slighter work, is M. A. DeWolfe Howe's *The Atlantic Monthly and Its Makers* (Atlantic Monthly Press), an account of one of the most important of the many factors which produced the literature of our country during the last half-century. It does not belong just here, but somewhere must be mentioned Brand Whitlock's great

book on *Belgium* (Appleton). To tell the truth the author was so much a part of what he saw that the book is almost as much biography as history. However it be classed, it is an addition to the really memorable books of the year.

Essays.—There appear to be rather more volumes of what in literature are called simply "essays" than there used to be. Here would come Don Marquis's *Prefaces* (Appleton) and F. L. Dunne's *Mr. Dooley on Making a Will and Other Necessary Evils* (Scribner), characteristic productions of humorists of very different types, as well as many more. But of more real importance is John Burrough's *Field and Study* (Houghton, Mifflin), not the last, it will be hoped, of the long row of volumes of the author's essays which have charmed and instructed so many freinds. This volume contains something of the observation of wood and field that we always desire to have of Mr. Burroughs, but it gives mostly his meditations and observations of the spiritual life. Mr. Burroughs says: "When I write about Nature and make much of her beauties, I am

writing about God." It tells quite as much as one could otherwise about this kind of literature (in which America has been preëminent) to quote this one sentence from her most popular master of it. It is not an essay, but we also note here William Beebe's *Jungle Peace* (Holt), a truly literary work of a man who, although (or perhaps because) he is a scientist, has a finely imaginative mind as well as an easy gift of expression.

Necrology.—There have died during the year Mrs. Harriet Miller, better known as Olive Thorne Miller, the writer on nature, on Christmas Day, 1918; Theodore Roosevelt, Jan. 6th; Charles E. Van Loan, the best of our writers of sporting stories, March 2; Amelia E. Barr, so long read and loved, March 10; William Morton Payne, long connected with the *Dial*, July 10; John Fox, Jr., the novelist of the Southern mountains, July 8; William N. Harben, one of whose novels is mentioned above, Aug 7; Henry Mills Alden, for more than half a century editor of *Harper's Magazine*, Oct. 7; and Ella Wheeler Wilcox, long and widely known for her verse, Oct. 30.

MODERN LANGUAGES AND LITERATURE

ENGLISH LANGUAGE AND LITERATURE

ALBERT C. BAUGH

Progress in Research.—The period of readjustment has not had as yet a very stimulating effect on English scholarship in America. Although research has continued during 1919 much as it went on during the war, it has resulted chiefly in a goodly number of limited investigations, but has hardly produced any work on a large scale that can be considered of preëminent importance. This, however, was to be expected. Now that the difficulties of research have been materially decreased, we may expect extensive work in English scholarship to be resumed in the United States with gratifying results.

English Philology.—Samuel Moore and T. A. Knott have prepared a short book on the *Elements of Old English*. Frederick Klaeber writes "Concerning the Functions of O. E. *geweorðan*

and the Origin of German *gewähren lassen*" (*JEGP*¹). G. I. Flom discusses "The Origin of the Place-name *Keswick*" (*ibid.*), and Miss J. M. Lyons in "Frisian Place-names in England" (*PMLA*) supports a view as old as Procopius that the Frisians played a prominent part in the Teutonic settlement of Britain. C. D. Buck has a very interesting article on a fragment of an early Italian bronze urn containing "An ABC Inscribed in Old English Runes" (*MP*). Mention may be made of O. B. Schlutter's "Old English Lexi-

¹ Periodicals are cited under the following abbreviations: *MLN*, *Modern Language Notes*; *MLR*, *Modern Language Review*; *MP*, *Modern Philology*; *PMLA*, *Publications of the Modern Language Association of America*; *JEGP*, *Journal of English and Germanic Philology*; *SP*, *University of North Carolina Studies in Philology*; *RR*, *Romantic Review*. Titles appearing as theses or in the publications of universities are followed where possible by the name of the university.

cal Notes" (*MLN*) and H. G. Shearin's lengthy review (*ibid.*) of Callaway's studies in Old English syntax (*cf.* *A. Y. B.*, 1918, p. 771). In Middle English Samuel Moore has published *Historical Outlines of English Phonology and Middle-English Grammar*, J. F. Royster has given us "A Note on French-English Word Pairs in Middle English" (*MP*), and John C. Mendenhall has printed a thesis on *Aureate Terms* (Pennsylvania), in which he shows that the fashion by which fifteenth-century English writers adorned their style with rare and unusual words was the product of a continuous clerkly tradition of literary study and criticism. Two books are concerned with the English language in this country: H. L. Mencken's *The American Language: A Preliminary Inquiry into the Development of English in the United States* and G. P. Krapp's *The Pronunciation of Standard English in America*.

Old-English Literature (449-1150).

—In Old-English literature *Beowulf* has attracted its usual attention. W. W. Lawrence has published a study of "The Dragon and His Lair in *Beowulf*" (*PMLA*), Frederick Klaeber, Carleton Brown, and Samuel Moore consider textual difficulties (*MLN* and *JEGP*), and W. E. Leonard examines "*Beowulf* and the *Nibelungen Couplet*" (*Wisconsin*). A. S. Cook has edited *The Old-English Elene, Phoenix, and Physiologus* and discussed "The Authorship of the Old English *Andreas*" (*MLN*), making a point which he thinks indicates that Cynewulf was the author. O. F. Emerson offers textual "Notes on Old English" (*MLR*), J. W. Bright and R. L. Ramsey present "Notes on the West-Saxon Psalms" (*MLN*), and H. R. Patch studies the slight "Liturgical Influence in *The Dream of the Rood*" (*PMLA*) as it came from those parts of the church service devoted to the celebration of the cross.

Middle-English Literature (1150-1500).—One of the important poems of early Middle-English literature has had new light thrown upon it by H. B. Hinckley in "*The Date of The Owl and the Nightingale*" (*MP*). Allusions in the poem are used to place its composition between 1176

and 1178. Miss H. E. Allen has printed brief notes "On Richard Rolle's Lyrics" and "A New Latin MS. of the *Ancoren Riwele*" (*MLR*). H. R. Patch treats "Some Elements in Medieval Descriptions of the Otherworld" (*PMLA*). In "*The Castle of the Body*" (*SP*) C. L. Powell gathers together passages illustrating the allegorical conception of the body as a world, city, or castle. Miss G. G. King discusses "The Vision of Thurkill [in Matthew Paris and Roger of Wendover] and Saint James of Compostella" (*RR*), and Miss G. Schoepperle traces in Celtic literature the superstition of "The Washer of the Ford" (*JEGP*). O. F. Emerson in "Middle-English Cleanliness" (*PMLA*) has added to a rapidly growing body of textual commentary. Miss C. D'Evelyn, "*Piers Plowman in Art*" (*MLN*), criticizes an article by E. W. Tristram on "*Piers Plowman in English Wall Painting*." In the romance J. Douglas Bruce has completed his series of long and valuable articles on "The Composition of the Old French Prose *Lancelot*" (*RR*), and in "Mordrain, Corbenec, and the Vulgate Grail Romances" (*MLN*) argues convincingly for the authorship of both romances at Corbie. W. A. Nitze has published the first part of an article "On the Chronology of the Grail Romances" (*MP*), this part being concerned primarily with the determination of the date of the *Perlesvaus* as shortly after 1191. A. C. L. Brown has also begun a study of "The Grail and the English *Sir Perceval*" (*ibid.*), the first part of which is devoted to showing that *Sir Perceval of Gales* is independent of Chrétien's *Conte du Graal*. "The Sources of *St. Erkenwald* and *The Trental of Gregory*" (*ibid.*) by J. R. Hulbert, "Notes on the *Tristan* of Thomas" (*MLR*) by R. S. Loomis, and "Jacques de Vitry and *Boeve de Haumtone*" (*MLN*) by Miss L. A. Hibbard are concerned with other romances. M. B. Ogle, "Some Theories of Irish Literary Influence and the *Lay of Yonec*" (*RR*), shows that there were classical and oriental sources from which the materials of the *Lay* could have been derived. T. P. Cross discusses the chastity-testing mantle in "The Gaelic 'Ballad of the

Mantle'" (MP). In the field of popular poetry H. M. Belden has considered the "Folk-Song in America—Some Recent Publications" (MLN), and H. G. Shearin records versions of "Lord Randal in America" (MLR). In "King Cnut's Song and Ballad Origins" (MLN) Miss Louise Pound raises a question as to its position in the development of the ballad, and in "The Ballad and the Dance" (PMLA) she attacks the belief that the ballad and the song had their origin in the dance. Mention may finally be made of two more general items in Middle English: Miss M. B. Carr's "Notes on a Middle-English Scribe's Methods" (Wisconsin) and the *Census of Incunabula in America*, edited by G. P. Winship (*Bull. New York Public Library*).

Chaucerian scholarship has produced rather slighter results in 1919 than usual, although there are papers of genuine worth to record. Karl Young in "Aspects of the Story of Troilus and Criseyde" (Wisconsin) examines the bearing of the principles of courtly love upon the rôle of Pandarus and upon Criseyde's attitude toward marriage. H. R. Patch considers "Troilus upon Predestination" (JEGP). H. M. Ayres, "Chaucer and Seneca" (RR), makes the most out of the rather slight debt Chaucer owes to Seneca, and E. F. Shannon, "Chaucer and Lucan's *Pharsalia*" (MP), reviews the recorded borrowings from Lucan and adds one or two. H. R. Patch writes of "Chaucer's Desert" (MLN) in the *House of Fame*, and W. E. Farnham suggests further folk-lore connection for "The Fowls in Chaucer's Parliament" (Wisconsin). E. F. Amy has published a study of *The Text of Chaucer's Legend of Good Women* (Princeton). Miss M. Fabin, "On Chaucer's *Anelida and Arcite*" (MLN), compares Chaucer's poem with Machaut's *Lai de la Soucie*. Miss F. M. Grimm investigates the *Astronomical Lore in Chaucer* (Nebraska), and T. O. Wedel studies *The Medieval Attitude Toward Astrology. Particularly in England* (Yale). Brief notes include O. F. Emerson's "Chaucer's Opie of Thebes Fyn" (MP), containing two instances of Chaucer's familiarity with mediæval

medicine, and J. D. Bruce's note on a proverbial expression in the "Prologue to the Canterbury Tales" (MLN).

The early drama has received some attention. G. R. Coffman has published "The Miracle Play in England: Some Records of Presentation, and Notes on Preserved Plays" (SP). Karl Young in "A New Version of the *Peregrinus*" (PMLA) prints a text from a manuscript in Madrid. L. Wann considers "The Influence of the French Farce on the Towneley Cycle of Miracle Plays" (*Trans. Wis. Acad.*). Miss M. C. Lyle discusses *The Original Identity of the York and Towneley Cycles* (Minnesota), and Miss F. H. Miller, "The Northern Passion and the Mysteries" (MLN), adduces further parallels showing that the author of the York passion plays used the *Northern Passion* extensively.

Modern English Literature (since 1500).—One of the most useful aids to the study of a poet, if it is properly used, is a concordance to his works. In *A Subject-Index to the Poems of Edward Spenser* C. H. Whitman has filled a long felt want. A. H. Gilbert in "Spenser's Imitations of Ariosto: Supplementary" (PMLA) makes additions to those listed by Dodge, and W. P. Mustard traces "E. K.'s Classical Allusions" (MLN). The same writer offers a few "Notes on Lyly's *Euphues*" (*ibid.*). S. Harkness analyzes "The Prose Style of Sir Philip Sidney" (Wisconsin). H. E. Rollins discusses "The Date, Authors and Contents of *A Handful of Pleasant Delights*" (JEGP), and J. H. H. Lyon has published *The New Metamorphosis, Written by J. M., Gent., in 1600* (Columbia). H. E. Rollins has given us an elaborate and comprehensive study of "The Black-Letter Broadside Ballad" (PMLA), and has shown, "Concerning Bodleian Ms. Ashmole 48" (MLN), that it is a compilation of much less importance than is generally attached to it. He has also written at some length of "Martin Parker, Ballad-Monger" (MP). Miss E. M. Albright in "*Ad Imprimendum Solum*" (MLN) maintains against Pollard that the expression did mean "sole rights to printing" and not "to printing only"

(MLN). Pollard has replied in the *Library*.

Shakespeare and the Elizabethan drama are subjects of perennial interest. A. H. Tolman has published a series of "Shakespeare Studies" (MLN), discussing Shakespeare's supposed references to his marriage, the choosing of the caskets, the epic character of Henry V, and drunkenness in Shakespeare. He has also considered the question, "Why Did Shakespeare Create Falstaff?" (PM LA), in a suggestive article, which, however, illustrates a tendency in modern Shakespearean criticism to see in each accidental circumstance a deep or subtle artistic purpose. M. P. Tilley writes on "Shakespeare and the Puritan's 'Pensive Regard for the Well-Bestowal of Time'" (JEGP). *King John* has been issued in the Variorum Edition, edited by Horace Howard Furness, Jr. (E. E. Stoll has published *Hamlet: An Historical and Comparative Study* (Minnesota). W. W. Lawrence's "The Play Scene in *Hamlet*" (JEPG) treats an important and strangely neglected matter, discussion of which has been stimulated by an article of W. W. Greg (MLR). H. D. Gray examines the purpose of "The Dumb Show in *Hamlet*" (MP), and H. A. Doak discusses "Ghosts in Shakespeare" (North Dakota). J. D. Rea points to the *Naufragium*, one of the colloquies of Erasmus, as "A Source for the Storm in *The Tempest*" (MP), and L. Mason records some "Stray Notes on *Othello*" (MLN). Tucker Brooke in "*Titus Andronicus* and Shakespeare" (MLN) attacks a paper by H. D. Gray (cf. A. Y. B., 1917, p. 726), thereby provoking a protest from R. M. Alden in "*Titus Andronicus* and Shakespeare Dogmatics" (*ibid.*) and a reply by Gray (*ibid.*). T. M. Parrott in "Shakespeare's Revision of *Titus Andronicus*" (MLR) has also considered the problem involved in this play, deciding upon superficial revision by Shakespeare in scenes that he thinks can be approximately determined by metrical tests. J. Q. Adams, "Shakespeare, Heywood, and the Classics" (MLN), believes that the company that joined with the Queen's men in the production of Heywood's *Ages*

was none other than Shakespeare's, the King's men. Other Shakespearean literature includes E. P. Kuhl's "Shakespeare and *The Passionate Pilgrim*" (MLN), A. Morgan's "What Meres Knew About Shakespeare's Sonnets: A Reply to Dr. Carpenter" (*Cath. World*), G. R. Havens' "The Abbé Prévost and Shakespeare" (MP), and E. G. Lawrence's *Sidelights on Shakespeare*.

Next to Shakespeare Ben Jonson has been most popular with the critics. J. D. Rea has edited *Volpone* (Yale); D. L. Clark discusses the renaissance theory of poetry and rhetoric in "The Requirements of a Poet: A Note on the Sources of Ben Jonson's *Timber*, Paragraph 130" (MP); L. H. Harris considers "Lucan's *Pharsalia* and Jonson's *Catiline*" (MLN) and "Local Color in Ben Jonson's *Catiline* and Historical Accuracy of the Play" (*Class. Philol.*); and J. Q. Adams has recorded the vicissitudes of "The Bones of Ben Jonson" (SP). J. M. Steadman, Jr., in "The Dramatization of the Robin Hood Ballads" (MP), considers the extant plays but not those known only by title. Various sources and parallels are recorded in B. M. Woodbridge's "Marlowe and Jean de Meung" (MLR), F. L. Schoell's "G. Chapman's 'Commonplace Book'" (MP), E. K. B.'s "*Locrine* and the *Faerie Queene*" (*Nation*), and H. F. Schwarz's "John Fletcher and the *Gesta Romanorum*" (MLN). Heywood's *The Captives*, or *The Lost Recovered* has been edited by A. C. Judson (Yale), and Massinger's *Duke of Milan* by T. W. Baldwin. Lacy Lockert has written of "Marston, Webster, and the Decline of the Elizabethan Drama" (*Sewanee Rev.*). Theatrical matters have received some consideration. In "The Housekeepers of the Globe" (MP) J. Q. Adams traces the ownership of the various shares from the organization of the theater until the building was pulled down in 1644. He has also cast doubt upon the identity of "An 'Hitherto Unknown' Actor of Shakespeare's Troupe?" (MLN). A. Thaler, "Playwrights' Benefits, and Interior Gathering in the Elizabethan Theater" (SP), supplements Lawrence's work on these two topics, and G. F. Reynolds discusses in an interesting

paper "Two Conventions of the Elizabethan Stage." (MP).

Of seventeenth-century writers Milton has received most attention. A. H. Gilbert has compiled *A Geographical Dictionary of Milton* (Cornell), and E. N. S. Thompson has written on "Milton's Knowledge of Geography" (SP). Gilbert has studied "The Cambridge MS. and Milton's Plan for an Epic" (*ibid.*) and pointed out "A Parallel between Milton and Seneca" (MLN). R. E. N. Dodge discusses "Theology in *Paradise Lost*" (Wisconsin); G. Sherburn in "The Early Popularity of Milton's Minor Poems" (MP) lists chronologically the references to the poem down to 1740; D. H. Stevens considers "The Order of Milton's Sonnets" (MP); and J. H. Hanford follows "Milton and the Return to Humanism" (SP) through the ages. Notable books have also been written about the English Bible. J. H. Penniman's *A Book About the English Bible* is the most complete discussion. Others include W. L. Phelps' *Reading the Bible*, C. A. Smith's *Keynote Studies in Keynote Books of the Bible*, and D. H. Kyes' *The Literary Style of the Prophetic Books of the English Bible*. S. R. Shafer has traced the course of *The English Ode to 1660* (Princeton). S. E. Leavitt writes on "Paul Scarron and English Travesty" (SP). H. M. Belden rallies to Dryden's defense in "The Authorship of 'Macflecknoe'" (MLN). D. N. Smith has edited a collection of *Characters from the Histories and Memoirs of the Seventeenth Century*, and J. B. Wharey compares "Bunyan's *Holy War* and the Conflict Type of Morality Play" (MLN). In the later drama we may mention L. Wann's "The Oriental in Restoration Drama" (Wisconsin), J. F. Bradley's record of borrowing that amounts to plagiarism in "Robert Baron's Tragedy of *Mirza*" (MLN), D. Miles' "A Forgotten Hit: *The Non-juror*" (SP), and Miss L. B. Campbell's "A History of Costuming on the English Stage between 1660 and 1823" (Wisconsin).

In the eighteenth century J. M. Beatty, Jr., points to "Charles Churchill's Treatment of the Couplet" (PMLA) as a revolt against the correctness of Pope, and also examines

"The Political Satires of Charles Churchill" (*Trans. Wis. Acad.*). C. A. Moore discovers "A Predecessor of Thomson's *Seasons*" (MLN), Miss C. Rinaker discusses "Thomas Edwards and the Sonnet Revival" (*ibid.*), and H. W. O'Connor "The Narcissa Episode in Young's *Night Thoughts*" (PMLA). G. B. Denton rejects "A Stanza Ascribed to Thomas Gray" (MP); A. H. R. Fairchild gives us an interesting little study of "Robert Bloomfield" (SP), a minor eighteenth-century poet; and R. C. Whitford goes at length into "Satire's View of Sentimentalism in the Days of George the Third" (JEGP). In the eighteenth-century novel R. S. Crane, in "A Note on Richardson's Relation to French Fiction" (MP), has proved Warburton's authorship of the preface pointed out by G. C. Macaulay, and the unsoundness of Macaulay's conclusions based on it. Miss H. S. Hughes also discusses "Richardson and Warburton" (*ibid.*). W. Cross in "The Legend of Henry Fielding" (*Yale Rev.*) shows us the real Fielding in contrast with the "bibulous spendthrift and libertine of tradition." Other Fielding items include "Fielding Notes" (MLN) by C. W. Nichols, "Fielding's Miscellanies" (MLR) by J. E. Wells, and "The Covent-Garden Journal Extraordinary" (MLN) by G. E. Jensen. W. Kurrelmeyer records "A German Version of *Joseph Andrews*" (*ibid.*), and Miss H. S. Hughes publishes "Notes on Eighteenth-Century Fictional Translations" (MP). Mention may also be made here of W. Taylor's "The Prose Style of Johnson" (Wisconsin), R. F. Jones' *Lewis Theobald: His Contribution to English Scholarship* (Columbia), H. A. Burd's "Eight Unpublished Letters of Joseph Ritson" (*Trans. Wis. Acad.*), and Miss J. Patton's *The English Village: A Literary Study, 1750-1850*.

The romantic revival in English literature has received considerable attention. F. B. Snyder offers "Notes on Burns's First Volume" (MP). Lane Cooper writes on "Wordsworth's Knowledge of Plato" (MLN), Miss M. Mead on "Wordsworth's Eye" (PMLA), and A. Beatty on "Joseph Fawcett: The Art of War. Its Relation to the Early Development of

William Wordsworth" (Wisconsin). A. W. Crawford, "On Coleridge's *Ancient Mariner*" (MLN), suggests that the poem was a criticism of the spiritual feebleness of the church of his day. Miss A. D. Snyder discusses *The Critical Principles of the Reconciliation of Opposites as Employed by Coleridge* (Michigan), and J. H. Hanford considers "Coleridge as a Philologist" (MP). Miss M. R. Thayer writes on "Keats: *The Eve of St. Mark*" (MLN), and A. Harvey has published a volume on *Shelley's Elopement*. S. C. Chew in "The Centenary of *Don Juan*" (Am. Jour. Philol.) gives a bibliographical survey of the poem and its many sequels. He has also reviewed "The Pamphlets of the Byron Separation" (MLN). J. W. Draper's "The Social Satires of Thomas Love Peacock" (MLN) and notes by E. Bureta and M. A. Buchanan on "Spanish Ballads Translated by Southey" (MLN) should also be recorded.

"Rossetti Studies" have been published by A. E. Trombly (*South Atlantic Quart.*), and "*Festus and The Blessed Damsel*" (MLN), by A. D. McKillop, records Rossetti's indebtedness to the former poem. W. B. D. Henderson has written on *Swinburne and Landor: A Study of Their Spiritual Relationship and Its Effect on Swinburne's Moral and Poetical Development*. Miss A. T. Harding combines "Shelley's *Adonais* and Swinburne's *Ave Atque Vale*" (*Sewanee Rev.*). Miss M. E. Mead has published *A Catalogue of The Dr. Samuel A. Jones Carlyle Collection* (Michigan). F. W. Roe considers "Ruskin and the Sense of Beauty" (Wisconsin), and W. F. De Moss traces "An American Influence on John Ruskin" (*ibid.*). G. B. Denton, "Herbert Spencer and the Rhetoricians" (PMLA), finds wholesale borrowings in *The Philosophy of Style*. In the novel O. F. Emerson prints "Two Notes on Jane Austin" (*JEGP*), R. B. Johnson has gathered together a collection of essays on *The Women Novelists* and Miss M. Tomlinson has written on "The Beginnings of George Eliot's Art" (*Sewanee Rev.*). R. E. Burton has prepared *Dickens: How to Know Him*, and W. C. Phillips has published *Dickens, Reade and Collins*.

Sensation Novelists. A Study in the Conditions and Theories of Novel Writing in Victorian England (Columbia). Lane Cooper has done a very difficult piece of annotating in his edition of Meredith's *Essay on Comedy*, and O. J. Campbell considers "Some Influences of Meredith's Philosophy upon His Fiction" (Wisconsin). Miss R. D. Cornelius discusses "The Clearness of Henry James" (*Sewanee Rev.*), and W. B. Cairns, "Character Portrayal in the Work of Henry James" (Wisconsin). H. Maynadier throws "A Brick at a New Literary Idol" (*Sewanee Rev.*), namely, Samuel Butler's *Way of All Flesh*. A volume on recent literature is J. W. Cunliffe's *English Literature during the Last Half Century*. R. N. Whiteford discusses *Motives in English Fiction*, A. Mordell, *The Erotic Motive in Literature*, and J. F. L. Raschen, "Earlier and Later Versions of the Friendship Theme" (MP), part one being concerned with the Damon and Pythias story. Stylistic matters are treated in W. Strunk's *The Elements of Style*, H. L. Creek's "Philosophies of Style" (*JEGP*), P. Seiberth's "The Rhythmical Line" (*ibid.*), M. W. Croll's "The Cadence of English Oratorical Prose" (SP), and Miss A. L. F. Snell's "Notes on the Form of *The Dynasts*" (PMLA), a continuation of studies listed in the YEAR BOOK for 1918 (p. 771). Miss A. R. Burr's *The Autobiography*, Lane Cooper's "The Making and the Use of a Verbal Concordance" (*Sewanee Rev.*), L. M. Price's *English-German Literary Influences* (California), and W. B. Cairns' *British Criticism of American Writings, 1783-1815* (Wisconsin), are miscellaneous titles requiring mention. G. P. Baker has published an authoritative book on *Dramatic Technique*, L. B. Roland has specialized on *The Technique of the One-Act Play*, and B. H. Clark has collected an anthology of *European Theories of the Drama*. C. E. Whitmore examines "The Nature of Tragedy" (PMLA) and formulates "A Definition of Lyric" (*ibid.*). In comparative literature Miss R. I. Goldmark's *Studies in the Influence of the Classics on English Literature* (Columbia), Miss E. Nitchie's *Virgil and the English*

Poets (*ibid.*), and Miss M. L. Lilly's *The Georgic: A Contribution to the Study of the Vergilian Type of Didactic Poetry* (*Hesperia*) are all dissertations on the relation of English literature to the classics. One of the most important of recent books is J. L. Lowes' *Convention and Revolt in Poetry*, a collection of lectures delivered originally at the Lowell Institute.

GERMANIC LANGUAGES AND LITERATURES

DANIEL B. SHUMWAY

German Literature.—Although the armistice with Germany has existed for over a year there has been no sign of renewed interest in German literature in the popular magazines. The scientific periodicals contain, as usual, many interesting articles. In the field of the drama the *Poet Lore* translations still continue to acquaint the people of this country with the best in modern German literature; thus, Hofmannsthal's *Madonna Diadora*, Hartleben's *Hanna Jagert*, Kleist's *Feud of the Schrockensteins*, and Hebbel's *Maria Magdalena* have been translated for this series and published (Badger). In addition, translations of Schnitzler's *Gallant Cassian* (Phillips, LeRoy) and Sudermann's *Silent Mill* (Brentano) have been issued. *The Life and Works of Friedrich Hebbel* by T. M. Campbell is also announced (Badger). In the field of literary criticism J. H. Randall discusses the "Problem of Wilbrandt's Meister von Palmyra" (*Mod. Philol.*, June, 1919). A number of interesting articles have appeared on Goethe. Julius Goebel presents "Reminiscences of Plato in Goethe's *Faust*" (*Jour. Engl. and Ger. Philol.*, April, 1919). John A. Walz gives a new interpretation of the figures hovering over the place of execution in the brief scene, *Nacht, Offen Feld*, of *Faust* (*Mod. Lang. Notes*, May, 1919). M. J. Rudwin in an article "*Des Teufels Schöpferrolle bei Goethe*" (*Neophilologus*, iv, 319) traces the idea of the devil doing creative work back to the Gnostics and shows that Goethe obtained it from Arnold and Jacob Böhme. Wm. C. Cooper treats the "Revision and Com-

pletion of Tasso" (*Publ. Mod. Lang. Assoc.*) W. Kurrelmeyer in an article entitled "A Contemporary Criticism of Schiller's *Räuber*" (*Jour. Engl. and Ger. Philol.*, Jan., 1919) reviews a criticism of this play, which appeared in 1783 and which had hitherto escaped the notice of biographers and literary critics. He suggests that the unknown author was J. J. Gerstenberg, the well known translator of Shakespeare.

In the field of fiction the most important publication is that of the life of the medieval rogue, *Tyl Ulen-spiegel in the Land of Flanders and Elsewhere*, a novel written originally by C. T. DeCoster in Dutch but dealing with a German subject. In this case the translation was made from the French version by Geoffrey Whitwith (McBride). An excellent German translation has existed for a number of years. An article dealing with the same subject will be found in the *Nineteenth Century* for January under the title, "*Legende de Thyl Uylenspiegel, Legend of Old Flanders*." A well written essay by H. J. Weigand attempts an interpretation of Heine's odd work, *Das Buch LeGrand* (*Jour. Eng. and Ger. Philol.*, Jan., 1919), calling it a satirical Aristophanic comedy. Martin Schütze continues his "Studies in the Mind of Romanticism by discussing the determining factors in the action and structure of Kleist's dramas (*Mod. Philol.*, June, 1919). O. Walzel, "*Die künstlerische Form der deutschen Romantik*" (*Neophilologus*, iv), treats the artistic theories of the romanticists. D. F. Passmore discusses *Gutzkow's Short Stories* (Banta).

In the field of the lyric a short article in the *Literary Digest* of March 29 gives a survey of German poems appearing during the war and emphasizes the growing importance of Stefan Georg. Jessie Lemont has made a faithful and quite successful translation of the modern German lyricist Rainer Maria Rilke (T. C. Wright), and Martin Schütze apropos of this translation speaks of the same poet as one of the lyrical gem makers of Germany at present (*Dial*, May, 1919). The beautiful lyrics of Walther von der Vogelweide, which

never grow old have been englished by Frank Betts (Longmans). An admirable study of *Paul Gerhardt as a Hymn Writer and His Influence on English Hymnody* from the pen of T. S. Hewett has been issued (Yale Univ. Press). The "Humor of Wilhelm Busch" is the subject of an article by T. C. von Stockum (*Neophilologus*, iv).

In older literature there deserve mention the publication of the Middle High German poem *Von dem Jüngsten Tage* by L. C. Willoughby (Oxford Univ. Press) and the "Metrical Study of Georg Rudolf Weckerlin" (*Hesperia*, No. 10.) Although philosophy is not usually treated in this article, one is tempted to mention the excellent work of Wm. Salter on *Nietzsche, the Thinker* (Holt), which is by far the best book in English on this much discussed philosopher.

German Philology.—The articles in the field of German philology all concern themselves this year with word studies. F. A. Wood, "Germanic Etymologies" (*Mod. Lang. Notes*, April, 1919), traces the etymology of 18 different words. W. Kurrelmeyer, "German Lexicography" (*ibid.*, May, 1919), gives early occurrences of 12 different military loan words in German, the same scholar also discusses "Contributions to German Lexicography from the Translation of Heinrich von Eppendorff," of the sixteenth century (*Publ. Mod. Lang. Assoc.*). Aaron Schaffer treats the "Hebrew Words in Gryphius' *Horribilicribrifax*" (*Jour. Eng. and Ger. Philol.*). In the field of syntax J. Alexis published a *Study of the German Relative in the Eighteenth Century* (Banta), M. Diez treats *Analogical Tendencies in the German Substantive* (*Univ. of Texas*), and F. W. Pierce, in "The German Adjective and the Use of the Umlaut in its Comparison" (*Mod. Lang. Jour.*, Feb., 1919), presents a useful tabulation of the different classes of adjectives.

German Texts and Teaching.—In the field of German texts and teaching nothing of special importance has appeared. M. L. Perrin and Joel Hathaway have prepared an edition of Baumbach's popular tale *Der Schwiegersohn* (C. E. Merrill). Two tales of Johanna Spyri, *Beim Weid-*

enjoseph and *Moni der Geissbub*, have been issued (Scott), and the same author's famous child's tale *Heidi* has been published (Saalfield). T. B. Hewett and H. A. Farr prepared a little volume of *German for the American Soldier* (New Haven, Whitlock). Philip S. Allen published a practical German course, *German Without a Teacher* (Drake).

German-American Relations.—Clement Vollmer has written an excellent study of the *American Novel in Germany from 1871-1913* (*Americana Germanica Press*), and L. M. Price has published a full and valuable bibliography of all works dealing with the *Influence of English on German Literature* (*Univ. of Cal.*).

Scandinavian.—In the general Scandinavian field the *American Scandinavian Review* contains, as usual, many translations of stories and poems from Scandinavian languages, as well as articles on the various Scandinavian countries. In the Swedish field the most important publication is the translation of Selma Lagerlöf's powerful novel *Gösta Berling's Saga*, by Lillie Tudeer, for the American Scandinavian Foundation. In this connection it is worthy of note that the gripping story by the same authoress, *The Girl of the Marshcroft*, is being exhibited as a motion-picture film by the International Press Association. Anna Olsson's stories for children have been published under the title *Angelus Gäva* (Augustana Book Co.).

In the Norwegian field the most important publication is the translation of Johan Bojer's strong novel, *The Great Hunger*, by W. J. C. Worster and C. Archer. It is a story of the struggles of a boy of the lower classes much like Frenssen's Jörn Uhl. Björnssen's play *En Fallit* has been edited with an introduction and notes by J. A. Holvik (Augsburg Publ. Co.). In the field of research Wm. H. Eller has written an able study, *Ibsen in Germany, 1870-1900*, for the series "Studies in Literature" (Badger). A. LeRoy Andrews in a short article, "Further Influences upon Ibsen's Peer Gynt" (*Jour. Engl. and Ger. Philol.*, Jan., 1919) speaks of the indirect influence of Goethe's *Faust* through Heiberg's *En Sæl efter Döden*.

Dutch.—In the Dutch field much more activity is to be noted than usual. B. K. Kuiper has translated into Dutch Blasco Ibanez' famous novel, *The Four Horsemen of the Apocalypse*, under the title, *De Vier Paardes uit Openbaring* (Eerdmann & Sevensma). The same firm has also published two stories from the life of the Frisian people, *De jonker van Sterrenburg* and *Mooie Marie* by G. I. van der Ploeg. Wouter Nijhoff and M. E. van Kronenberg have prepared a *Nederlandsche Bibliographie* from 1500–1540 (Stechert). M. Goodman has treated of the *Dutch and English on the Hudson* (Yale Univ. Press) and B. K. Kuiper of the Dutch in the United States under the title *Ons Opmaken en Bouwen* (Eerdmann & Sevensma). Another volume in the Dutch language containing a wealth of material for use at festivals and lectures, etc., has been issued by the same firm under the title *Voor Onze Feesten, Voordrachten en Samenspraken*. It was compiled by A. Meyer.

ROMANCE LANGUAGES AND LITERATURES

GEORGE L. HAMILTON

French.—The aftermath of the war is as unfavorable to scientific research as the war itself. Since we have not suffered the loss of some of the most promising of our younger scholars, as is the case of the European nations, if we have the men, we shall have the occasion in the future to make more serious contributions to erudition, in Romance scholarship as in other fields, than in the past.

In the year 1919 the most extensive and original work of American Romance scholars has been done in the field of Old-French literature. T. A. Jenkins in writing "On alleged Anglo-Normanisms in the Oxford *Roland*" (*Mod. Philol.*, xvi, 369) has made an important contribution to the language and date of the best of the French epics. In his "The Descendants of Ganelon—and of Others" (*Rom. Rev.*, x, 149) G. L. Hamilton has shown how a general trait becomes individualized in certain prominent characters. Elizabeth S. Tyler in her Notes on the *Changun de Wil-*

lame (*ibid.*, ix, 396) makes some useful suggestions on the poem of which she has brought out a very convenient edition (Oxford Univ. Press). Laura A. Hibbard in a note on "Jacques de Vitry and Boeve de Haumstone," (*Mod. Lang. Notes*, xxxiv) shows how an episode in the adventures of a Crusader has been utilized in more than one French epic. E. S. Sheldon makes some cautious suggestions in his "Notes on Foerster's Edition of *Ivain*" (*Rom. Rev.*, x, 233), while in writing on the date of "*Ile and Galaron*" (*Mod. Philol.*, xvii, 383) he shows reason to discredit the early date of 1167–8, assigned to this work of Gautier d'Arras. J. D. Bruce continues and completes his learned researches on "The Composition of the Old French *Lancelot*," (*Rom. Rev.*, ix, 353; x, 48, 97), and in a note on "Mordrain, Corbenic, and the Vulgar Grail Romances" (*Mod. Lang. Notes*, xxxiv, 385) he discusses the sources and names of certain episodes in the connected group of Arthurian romances. In the first of his articles "On the Chronology of the Grail Romances, I. The Date of the *Perlesvaus*" (*Mod. Philol.*, xvii, 151) W. A. Nitze undertakes to establish definitely his thesis of the early date of one of these works, while in his "Eric's Treatment of Enide" (*Rom. Rev.*, x, 26) he clings vigorously to his own opinion on the motive of Chrétien de Troies' work. A. L. C. Brown in "The Grail and the English *Sir Perceval*" (*Mod. Philol.*, xvi, 553, xvii, 261) throws new light on the independent origin of the English poem on the same theme. R. Loomis throws light upon mediæval literary themes through his iconographical studies, for which he is so well prepared, in his "Notes on the *Tristan* of Thomas" (*Mod. Lang. Rev.*, xiv, 38) and his "Allegorical Siege in the Art of the Middle Ages" (*Am. Jour. Archæol.*, xxiii, 255), while R. T. Hill undertakes to present a critical text of "*La Vie de Sainte Euphrosine*" (*Rom. Rev.*, x, 159, 191), and Alma de L. Le Duc writes on "The Pastoral Theme in French Literature in the Fourteenth and Fifteenth Centuries" (*Mod. Lang. Rev.*, xiv, 398). While T. P. Cross in his article on "The Gaelic Ballad of the Mantle" (*ibid.*, xvi,

649) emphasizes the fact that the most primitive motive appears in modern Celtic versions as showing a Celtic source of a widely diffused tradition found in French works of an early date, M. G. Ogle in his "Some Theories of Irish Literary Influence and the Lay of Yonec" (*Rom. Rev.*, x, 123) shows how world-wide is another tale which some scholars find purely Celtic. M. Fabin, writing "On Chaucer's *Anelida and Arcite*" (*Mod. Lang. Notes*, xxxiv, 266), wishes to show the indebtedness of the English poet to Machant's *Lai de la Souscie*. Hélène J. Harvitt shows the high regard in which "Hugues Salel, Poet and Translator" (*Mod. Philol.*, xvi, 595) was held by his contemporaries, if he is only remembered by students of the Renaissance as a translator of the *Iliad*. R. G. Usher in writing on "Francis Bacon's Knowledge of Law French" (*Mod. Lang. Notes*, xxxiv, 28) throws light on our information about the schooling of a great man and the continued survival of the bastard form of Norman French among English lawyers as late as the seventeenth century. H. C. Lancaster adds to our knowledge of Jodille and Colet in a note in the *Romanic Review* (x, 173), and A. G. H. Spiers has a suggestive article on "Corneille's *Polyeucte* Technically Considered" (*Mod. Lang. Rev.*, xiv, 44). H. Ashton in "The Confession of the *Princess of Clèves*" elucidates further an episode of *Le Princesse de Clèves* of Mme. de la Fayette, based on an episode in the life of Mme. de Montespan. S. E. Lett in writing on "Paul Scarron and English Travesty" (*Univ. of N. C. Studies in Philol.*, xvi, 108) points out how inferior is the type of literature produced in England at the close of the seventeenth century in imitation of French works of the same character. W. Kurrelmeyer in a study on "The Source of Wieland's *Don Sylvio*" (*Mod. Philol.*, xvi, 637) shows how largely the German writer is indebted to a French fairy romance of the eighteenth century in one of his works, and the same author has also shown his indebtedness to the most famous of French picaresque novels for names, episodes, and even verbal phrases in a note on "*Gil Blas*, and *Don Sylvio*" (*Mod. Lang. Notes*,

xxxiv, 78). R. S. Crane in "A Note on Richardson's Relation to French Fiction" (*Mod. Philol.*, xvi, 495) shows that the English novelist was not indebted to any French models, however much such an influence may be instanced, as is shown by Helen S. Hughes in her "Notes on Eighteenth-Century Fictional Translation" (*ibid.*, xvii, 225). Irving S. Babbitt's historical and critical study on *Rousseau and Romanticism* (Houghton, Mifflin), is as well informed, as suggestive, and as irritating as his earlier valuable works on modern French literature. G. Chinard makes a further contribution to his studies on the sources of Chateaubriand in the introduction and notes to his edition of *Les Natchez*, *Livres I and II* (*Univ. of Cal. Publ. in Mod. Philol.*, vii, 201), and W. Girard in the completion of his work, of special interests to Americans, "*Du transcendentalisme considéré sous son aspect social*" (*ibid.*, 1) devotes most of his space to discuss the French origins of the movement. A. R. Nykl in a note on "The Talisman in Balsoc's *Peau de Chagrin*" (*Mod. Lang. Notes*, xxxiv, 479) shows how the great novelist thought his readers would be even more ignorant than himself in his treatment of the object around which one of his most widely read stories centers, and P. F. Baum, writing on "The Young Man Betrothed to a Statue" (*Publ. Mod. Lang. Assoc.*, xxxiv, 523) sets forth the long pedigree of the theme of one of Merimée's stories, *Venus d'Ille*. S. P. Shanks in his book on Anatole France gives a well written sketch and appreciation of the life and work of the greatest of contemporary French authors. M. M. Dondo under the title of "*Vers libre*" (*Publ. Mod. Lang. Assoc.*, xxxiv) discusses the rhymical values of the work of the apostles of this advanced school of poetry. A. G. J. Spiers in his paper on "An Ill-Advised Criticism of Cyrano de Bergerac" (*Univ. of N. C. Studies in Philol.*, xvi, 102) takes up the cause of Rostand against the most severe of his critics, Magne, who has impugned the accuracy of the historical details of this celebrated drama.

Spanish.—G. T. Northrup in an article on "The Imprisonment of King

Garcia" (*Mod. Philol.*, xvii, 393) traces the evolution in literature of the fate of the hapless King of Galicia, who died in 1090. R. Schevill in his volumes on Cervantes in the Series of "Master Spirits of Literature" (Duffield), has given us a well considered and readable account of the life and work of the greatest of Spanish authors. J. L. Perrin in his article on "Don Garcia de Mendoza in Ercilla's *Araucana*" (*Rom. Rev.*, ix, 430) shows the part played by the hero in this, the first work of literary merit written on the Western Hemisphere. S. G. Morley continues his studies on the versification of the Spanish poets in his "Studies in Spanish Dramatic Versification of the *Siglo de Oro*, *Alarcón* and *Moreto*" (*Univ. of Cal. Publ. in Mod. Philol.*, vii, 130), and in the same publications we find two interesting articles on nineteenth-century writers, one (*ibid.*, 87) by Elizabeth McGuire, "A Study of the Writing of D. Mariano José de Larra, 1809-1837," in which particular attention is given to the indebtedness of this justly popular writer to French models, and the other, in which more than justice is done to the minor novelist and reactionary,

Francisco Navarro Villoslada, by Beatrice Q. Cornish (*ibid.*, 1).

Italian.—A. H. Krappe in a note on "The Legend of the Glove" (*Mod. Lang. Notes*, xxxiv, 16) adds something to our knowledge of the story, of Italian literary origin which was the basis of Schiller's "*Der Handschuh*" but is better known to English readers in the forms of Leigh Hunt and Browning. E. Goygio has gathered some notes on the study of Italian in this country in his "Dawn of Italian Culture in America" (*Rom. Rev.*, x, 250). E. H. Tuttle continues to make suggestions which throw light upon various individual phonetic phenomena in his "Hispanic Notes: *Azarilaziago*; B for U" (*Rom. Rev.*, x, 170), while in his studies on "Vowel-Breaking in Southern France" (*Mod. Philol.*, xvi, 585) and "Notes on Romanic Speech-History" (*Mod. Lang. Rev.*, xiv, 105), he shows a capacity for dealing with more general linguistic principles in a way that attracts attention. O. M. Johnston follows the historical development of a French syntactical phrase in his note on "*Que* for *Jusqu'à ce que* with *Attendre*" (*Mod. Lang. Notes*, xxxiv, 282).

ANCIENT LITERATURE AND PHILOLOGY

GREEK LITERATURE

WILLIAM ARTHUR HEIDEL

Owing to conditions arising from the war certain books that should have received attention earlier can only now be noticed; others already published have not yet come to hand and report of them must be postponed. The publication of a second edition, revised and enlarged, of Van Leenwen's *Euchiridium Dictiones Epicae* (Leyden, Sigthoff, 1918) is to be heartily welcomed.

The Greek dramatists have, as usual, claimed a large share of the attention of writers. A welcome little volume gives *The Acharnians* of *Aristophanes* as played by the Oxford University Dramatic Society in February, 1914, in a Greek text based on that of the Oxford Classical Texts and in the excellent translation into English verse, reprinted by permission, by R. Y. Tyrrele (Oxford Univ.

Press, 1914). *Studies in Greek Tragedy* by Louise E. Matthaëi (Cambridge Univ. Press, 1918), founded on lectures given at Newnham College, devotes separate chapters to the *Prometheus Bound* of *Æschylus*, to the *Ion*, *Hippolytus*, and *Hecuba* of *Euripides*, and to the use of accident in plots. These studies are brightly phrased and well considered, being in fact a valuable contribution to the understanding of dramatic literature. Two volumes of the "Columbia University Studies in Classical Philology" should not be overlooked in this connection, namely, Miss Pearl C. Wilson's treatment of *Wagner's Dramas and Greek Tragedy*, and Wm. S. Messer's *The Dream in Homer and Greek Tragedy*. The latter particularly adds not a little to our knowledge of poetic technique in a matter hitherto hardly considered. *The Crimes of the Oedipodean Cycle*, by Henry Newpher Bowman (Badger, 1918), is of

some slight value, which is, however, in no way related to the chief interest of the author, for his purpose was to apply the principles of Freud to the interpretation of these myths. One may recognize a certain degree of truth in the Freudian analysis of dreams without sharing Mr. Bowman's enthusiasm for Dr. Abraham's *Dreams and Myths* or believing that this kind of study is likely to shed much light on the Greek dramatists. A consideration of "The Heracles Myth and Its Treatment by Euripides," by G. L. Hendrickson, deserves to be ranked with Miss Matthaëi's studies. It is one of the *Classical Studies in Honor of Charles Forster Smith* (see also *Latin Literature, infra*), written by his colleagues (Univ. of Wisconsin, 1919). The same volume contains papers on "The Source of Herodotus' Knowledge of Artabazus," by A. G. Laird, and "A Study of Pindar," by Annie M. Pitman, besides an interesting discussion of certain Favum papyri, under the title of "An Egyptian Farmer," by W. L. Westermann.

Translations of various Greek works have appeared, chiefly in the Loeb Classical Library (Putnam). Here it is a pleasure to record that Professor Perrin has so promptly completed the sixth and seventh volumes of his admirable translation of Plutarch's *Lives*. Dewing offers the third volume of *Procopius*; C. D. Adams gives a worthy rendering of *The Speeches of Æschines*; and G. W. Butterworth translates three essays of Clement of Alexandria. The first volume of Xenophon's *Hellenica*, containing Books I-V, by C. L. Brownson, is measurably faithful but hardly to be commended as a model; and the version of Pausanias by W. H. S. Jones, of which the first volume has appeared, cannot be regarded as superior to Frazier's, though this instalment gives promise of an excellent and handy edition of that important author. *Selected Essays of Plutarch*, Vol. II, by A. O. Prickard (Clarendon Press, 1918), contains in a charming English translation a number of important treatises, such as that "On the Genius of Socrates," the three "Pythian Dialogues," and that "On Delay in

Divine Punishment." F. M. K. Foster's *English Translations from the Greek* (Columbia Univ. Press, 1918) gives a bibliographical survey of real interest and value to the student of classical influences in English literature. A book on this subject, *The Classical Influence in English Literature in the Nineteenth Century and Other Essays and Notes*, by William Chislett, Jr. (Stratford Co., 1918), is too sketchy and inadequate to be of great service. Rarely does one find so delightfully sane an exposition of the claims and possibilities of classical studies as in the charmingly written essay, entitled *Religio Grammatici: The Religion of a Man of Letters*, delivered by Gilbert Murray as the presidential address to the (British) Classical Association (Houghton, Mifflin, 1918). *The History of Religions*, by E. W. Hopkins, (Macmillan, 1918), contains an interesting chapter (xxii) on "Greek Religion." W. R. Halliday's *Greek Divination* (Macmillan, 1913) is a valuable study, though incomplete, and should have been noticed earlier in this series of reviews of Greek literature.

Pagan Ideas of Immortality during the Early Roman Empire, the Ingersoll Lecture (1918) by C. H. Moore (Harvard Univ. Press, 1918), presents a clear sketch of an interesting subject without giving a satisfactory explanation of the origin or associations of these ideas. A work of capital importance is Ernest Barker's *Greek Political Theory—Plato and his Predecessors* (Methuen, 1918). The emphasis on Plato's *Laws* is especially to be commended. L. W. Hopkinson's *Greek Leaders* (Houghton, Mifflin, 1918) contains 11 biographical sketches which may be recommended to teachers of Greek history for collateral reading. T. R. Glover's *From Pericles to Philip* (Macmillan, 1917) treats in an exceptionally vivid way the main events of the greatest period of Greek history. The book will prove to be of equal interest to the general reader and to the historian. *The Platonism of Philo Judæus*, by J. H. Billings (Univ. Chicago Press, 1919), a dissertation of distinct value, discusses exhaustively a subject debated for centuries. *The Biblical Antiquities of Philo*, now

first translated from the old Latin version by M. R. James (Macmillan, 1917), is in fact a pseudonym, for it has no relation to Philo. Nevertheless it is a most valuable addition to our resources for the study of the Jewish background of early Christianity. The Society for Promoting Christian Knowledge, to whose support we owe this publication, gives us two other works of equal interest in good English versions: *St. Dionysius of Alexandria; Letters and Treatises*, by E. L. Feltoe, and the *Lausiac History of Palladius*, by W. K. Lowther Clarke. The former will interest students of Epicurus, the latter those who study early monasticism.

We have yet to mention three volumes which more than any of those listed above reflect honor on classical scholarship in America. Two of these should have received earlier notice, *The Old Testament Manuscripts in the Freer Collection* and *The New Testament Manuscripts in the Freer Collection*, both edited by Henry A. Sanders of the University of Michigan (Macmillan, 1917, 1918). Not only are these Greek manuscripts of great interest in connection with the tradition of the texts, but the work of the editor is so entirely adequate to his subject that it will occur to no one to begrudge him the exceptional privilege he has enjoyed of giving to the world publications of such importance. Another work of somewhat similar character is *Aristotelis Meteorologicorum Libri Quattuor. Recensuit indicem verborum addidit F. H. Fobes* (1919). The editor after elaborate preparation and detailed preliminary publication of the results of studies in the manuscript tradition of the *Meteorologica* of Aristotle now gives us a model critical edition of the text, which is sure to be the standard for many years to come. The Aristotelian treatise is in fact one of the most important documents for the historian of Greek science in its earlier stages, and he is bound to use this edition with a confidence he could not have in those of Bekker and Ideler, which are based on a far more limited knowledge of the manuscript tradition. One cannot refrain from thanking the syndics of the Harvard

University Press for the worthy publication of so excellent a work.

LATIN LITERATURE

CHARLES KNAPP

It is again possible to record studies in Lucretius and Vergil. C. H. Herford is author of an interesting lecture on *The Poetry of Lucretius* (Longmans). M. S. Slaughter well discusses "Lucretius, the Poet of Science," in *Classical Studies in Honor of Charles Forster Smith* (see below). C. Knapp in "An Analysis of Lucretius, *De Rerum Natura* I-III." (*Class. Weekly*, xiii) aims to help students to follow Lucretius' thought and the workings of his mind; a by-product of the paper is its proof that transpositions of Lucretius' verses from the places they occupy in the manuscripts is unsound procedure. G. D. Hadzsits discusses carefully "Lucretius as a Student of Roman Religion" (*Trans. Am. Philol. Assoc.*, xlix). H. R. Fairclough has completed his translation of Vergil (Loeb Classical Library) with a rendering of *Aeneid*, vii-xii and of all the poems in the "Appendix Vergiliana." W. Warde Fowler continues his masterly studies in Vergil with a volume entitled *The Death of Turnus: Observations on the Twelfth Book of the "Aeneid"* (Longmans). A very useful book is *Vergil and the English Poets* by Elizabeth Nitchie (Columbia Univ. Press).

Every study that deals at all carefully with the earliest remains of Latin writing is welcome. Such a study is T. Frank, "The *Columna Rostrata* of C. Duilius" (*Class. Philol.*, xiv). Admitting the charge that the epitaph as we have it is too fulsome and rhetorical to be attributed to the Romans themselves in 260 B. C., a score of years before Latin literature can fairly be said to begin, Frank accounts for these characteristics by supposing that, in the absence of Roman models, Duilius naturally adopted the style of the Greek honorific inscriptions to be seen in every city of Sicily. He thinks the inscription goes back to 260 B. C., but that, about 150 B. C., some one filled out certain illegible places in the orthography of that day. Our extant

version is due to a second restoration made in the early Empire. (See also *Indo-European Philology*, *infra*.)

In *Classical Philology* (xiv) H. W. Prescott published the sixth of a series of papers on "The Antecedents of Hellenistic Comedy," criticizing the methods of modern students of Roman comedy (Plautus and Terence) and questioning the processes by which they seek to prove the dependence of that comedy on Euripides. C. Knapp (*Class. Philol.*, xiv) discusses "References to Plays, Players, and Playwrights in Plautus and Terence," and also (*Am. Jour. Philol.*, xv). "References to Literature in Plautus and Terence," grouping allusions to the stories (e. g., that of Io, Jason, Hercules, the stories of the Trojan cycle) that figure so largely in Greek literature, especially Greek dramatic literature. E. H. Sturtevant in a paper entitled "The Coincidence of Accent and Ictus in Plautus and Terence" (*Class. Philol.*, xiv) proves once more that in early Latin verse accent and quantity both were factors. He stresses the rôle played by accent; he holds, further, that the Latin accent was at once expiratory and musical and dismisses the view of C. E. Bennett that ictus was not stress, but merely the quantitative prominence of the long part of a foot.

In connection with Cicero we note that E. P. Winstedt's translation of the *Letters* (Loeb Classical Library) is now complete (three volumes). Catharine Saunders, in a paper entitled "The ΠΑΛΙΝΟΔΙΑ of Cicero" (*Class. Philol.*, xiv) maintains that the palinode referred to by Cicero, *Ad Atticum*, iv, 5, was a communication sent by Cicero to Pompey, or perhaps directly to Cæsar himself, containing assurances that Cicero would withdraw opposition to Cæsar, in particular on the question of the Campanian land law. This novel view rests on a careful study of various speeches of Cicero, etc. L. H. Harris, "Local Color in Ben Jonson's *Catiline* and Historical Accuracy of the Play" (*ibid.*), notes that Jonson followed his sources (Cicero, Sallust, Plutarch) closely, as a result doing grave injustice to Catiline, who was not as black as these writers paint him. Of interest also to students of

Cicero are the articles by C. N. Smiley and G. C. Fiske in *Classical Studies in Honor of Charles Forster Smith* (see below).

Livy's capacity for painting pictures instinct with dramatic imagination and colored with lively human sympathy has often been remarked. R. S. Conway, in a lecture entitled *The Venetian Point of View in Roman History* (Longmans), thinks that in all this Livy was in thorough accord with the tendencies of the Venetian district in which Padua, Livy's birth-place, was situate; the Venetian race, he says, has from the earliest times been remarkable for artistic ability, which culminated in the great painters of the Renaissance.

In connection with Catullus we may note an important article by A. L. Wheeler, "Remarks on Roman Poetic Diction" (*Class. Weekly*, xii), and of interest to students of Cæsar is an article by F. S. Dunn, "Julius Cæsar in the English Chronicles" (*Class. Jour.*, xiv).

A welcome addition to the limited body of material available for the study of Seneca's philosophical writings is an edition, with notes and a translation in French, of *Ad Helviam Matrem De Consolatione*, by Charles Favez. Of interest too is the paper by C. N. Smiley in *Classical Studies in Honor of Charles Forster Smith* (see below). Of great importance is the fine "*Index Verborum Quae in Senecae Fabulis Necnon in Octavia Reperiuntur*" by W. A. Oldfather, A. S. Pease, and H. V. Canter (*Univ. of Ill. Studies in Lang. and Lit.*, iv, Nos. 2-4).

R. B. Steele (*Am. Jour. Philol.*, xl) has a paper entitled "Curtius and Arrian," a demonstration of the extent to which the Latin author Q. Curtius Rufus employed the Greek writer Arrian as a source.

A welcome addition to our apparatus for the study of medieval Latin (the term "medieval" is used here in a very broad sense) is formed by a translation, in the Loeb Classical Library, by H. F. Stewart and E. K. Rand, of Boethius, the *Opuscula Sacra* and the *Philosophiae Consolatio*; and by F. M. Nichols' *Epistles of Erasmus*, Vol. III. In the latter work the epistles of Erasmus, from

the earliest to those of his fifty-third year, are arranged in chronological sequence and translated; with the translation is a commentary that justifies the chronological arrangement and adds biographical data.

Worthy of special mention is the volume entitled *Classical Studies in Honor of Charles Forster Smith* (Univ. of Wisconsin Studies in Lang. and Lit., No. 3), consisting of 10 papers by men and women at various times colleagues of Professor Smith at the University of Wisconsin. Of these papers the following are of importance to students of Latin literature (see also *Greek Literature*, *supra*): C. N. Smiley, "Seneca and the Stoic Theory of Literary Style," a paper of interest to students of Cicero also; G. C. Fiske, "The Plain Style in the Scipionic Circle," a discussion of certain phases of the style of the *Satires* of Lucilius and Horace and of the theories of humor held by these writers (of importance also to students of Cicero); Katharine Allen, "Britain in Roman Literature"; and M. S. Slaughter, "Lucretius, the Poet of Science."

Some reactions of scholars to the book by A. C. Clark, *The Descent of Manuscripts* (A. Y. B., 1918, p. 781), may be noted. One is a review of the book, by C. F. Walters (*Class. Rev.*, xxxiv), a complimentary notice, reinforced by evidence purporting to show that the author had applied Clark's principles successfully to the restoration in various places of the text of Livy. The other is a review (*Class. Jour.*, xiv) by E. T. Merrill, who has worked much on the manuscripts of Pliny the Younger, which is decidedly critical, not to say skeptical, of Clark's methods and results in restoration.

Works less directly connected with Latin literature, but still of importance to workers in that field, are the following: M. Platnauer, *The Life and Reign of the Emperor Septimius Severus* (Oxford Univ. Press); W. D. Gray, *A Study of the Life of Hadrian Prior to His Accession* (Smith Coll. Studies in Hist. iv, No. 2); A. E. R. Boak, "The Master of the Offices in the Later Roman and Byzantine Empires" (*Univ. of Michigan Studies, Humanistic Series*, xiv, Pt. i); G. Fer-

rero and C. Barbagallo, *A Short History of Rome* (three volumes), of which Vol. I treats the history down through the death of Julius Caesar and Vol. II, the Empire from 44 B. C. to 476 A. D.; E. Pais, *Dalle Guerre Puniche a Cesare Augusto*, two volumes (Rome, Nardecchia); E. Cocchia, *Il Tribunato della Plebe, la sua Autorita Giudiziaria Studiata in Rapporto colla Procedura Civile* (Naples, Piero, 1917); Elizabeth O'Neill, *Rome: A History of the City from the Earliest Times*; W. Ridgeway, "The Value of the Traditions with Respect to the Early Kings of Rome" (*Class. Jour.*, xiv), an interesting attempt to show that it is futile to reject the traditional Roman account of the regal period of Rome, as Mommsen did on the grounds, first, that the state archives were burned in 390 B. C., and, second, that the traditional stories of the regal period contain supernatural elements. Ridgeway lays stress on the power of memory and oral tradition, and argues, by citing very modern instances, that the supernatural elements may well have attached themselves to what were at first plain and reasonably accurate accounts of actual happenings; C. D. Buck, "Words for 'Battle,' 'War,' 'Army,' and 'Soldier'" (*Class. Philol.*, xiv), an instructive paper, showing, for instance, how widely some ancient classical words for "army" and "soldier" have been appropriated by different nations; E. Meyer, *Cæsars Monarchie und das Principat des Pompejus: Innere Geschichte Roms von 66 bis 44 v. Chr.*; G. de Sanctis, *Storia dei Romani*, Vol. III; J. E. Sandys, *Latin Epigraphy: An Introduction to the Study of Latin Inscriptions* (Cambridge Univ. Press), a very useful book, giving a good collection of materials well arranged; E. B. Lease, "The Number Three, Mysterious, Mystic, Magic" (*Class. Philol.*, xiv) and "The Use and Range of the Future Participle" (*Am. Jour. Philol.*, xl). The latter paper shows that Ovid first realized the stylistic possibilities of the future participle; through Ovid and Livy this participle was brought to its highest development, and to the Latin world "many new and varied nuances of expression were given."

SEMITIC LANGUAGES AND LITERATURES

MORRIS JASTROW, JR.

With the termination of the war communication with Germany has been reopened, and German publishers and booksellers are sending broadcast bibliographies of important books that were issued between 1914 and 1919. The opportunity afforded by a catalogue issued by Harrassowitz of Leipzig to see what has been published in Germany during these years in the Oriental field justifies devoting the space here afforded to a brief survey of the recent activity of German and Austrian scholarship in Semitics. The record is a surprising one in respect to both quantity and quality. The war apparently did not hinder pupils and colleagues of eminent scholars from bringing out the inevitable *Festschrift* on the occasion of a scholar's sixtieth or seventieth birthday. Publications of this character containing larger or smaller collections of papers covering the semitic field have been issued in honor of Eduard Sachau, director of the Oriental Seminary in Berlin; Julius Wellhausen, the great Biblical critic (who died in April, 1917); Count Wolf von Baudissin; Ernst Kuhn, the eminent Indologist and comparative philologist of Munich; Fritz Hommel, also of Munich University; Friedrich Karl Andreas; and Ernst Windisch. The list published by Harrassowitz covers almost 500 items of which about two-thirds represent contributions to Semitic philology and archaeology and publications of texts; the remaining one-third deals with Egyptology and Indology. Despite the war even new scientific societies have been organized and serials such as *Der Islamische Orient* inaugurated. Periodicals and publications of the various learned academies have proceeded without serious interruption. Perhaps of most general interest is the activity that has been carried on during the war in Hittite researches. Before relations with the Central Powers were broken off, some preliminary reports had reached this country of a successful attempt on the part of an Austrian scholar, Friedrich Hrozný, to solve the mystery of

the Hittite script. It now appears that Hrozný has published in three parts a series of Hittite studies, including a detailed analysis of his method of decipherment, together with specimen texts. That the attempt has been regarded as successful may be concluded from various monographs on the subject published by such scholars as Weidner of the University of Berlin and Holma of the University of Helsingfors. In addition, a large number of cuneiform texts from the Hittite center Boghazköi have been published by the German Orient Society. Although presumably many problems still remain to be solved before the decipherment can be said to be complete, it seems definite that the Hittite language has been shown to be Aryan in character, in itself a most important and somewhat astonishing result.

Another feature of the German publications in the Oriental field during the period of the war is the large number of monographs and larger works dealing with the historical and archæological problems in the realm of what until recently was the Turkish Empire. By the side of publication of Turkish documents, grammars, and philological publications, there are numerous large works dealing with art and monuments in the Turkish Empire, studies of geographical problems in Turkish lands, as well as many studies in the field of Arabic philology, all more or less connected with the relations between Turks and the various peoples of the Orient. No doubt this predominance of Turkish studies, leading to increased activity in the Arabic, Syriac, and Aramaic fields, reflects the high hopes entertained by Germany during the war of succeeding in her ambition to control the East. It will be interesting to see what influence the dashing of these hopes by Germany's defeat in the war will have on the direction to be taken by Oriental science in Germany during the next few years.

INDO-EUROPEAN PHILOLOGY

(Exclusive of the Germanic languages)

ROLAND G. KENT

The output of American scholars in Indo-European philology has been

much diminished of late by the Great War, since many devoted themselves to the service of their country rather than to research; notably A. V. W. Jackson of Columbia spent several months in Mesopotamia and Persia with the Red Cross, where his acquaintance with the country, the languages, and the people, gained in three previous journeys, rendered him invaluable. Yet perhaps Oriental studies may prove to be a gainer rather than a loser from the war, since Americans have come to feel greater interest in foreign affairs, especially in those of Asia. In recognition of this changed attitude the American Oriental Society, at its meeting in Philadelphia in April, passed resolutions calling for a School of Modern Oriental Languages to be established in this country under Government auspices, at Washington or elsewhere, for the training of young men who may be going to the Orient in consular service or for purposes of commerce (*Jour. Am. Orient. Soc.*, xxxix, 144, 151, 185). The same Society also appointed a committee to prepare a statement setting forth the scope, character, aims, and purposes of Oriental studies, to be presented with the backing of the Society to the higher institutions of learning at which such studies are not represented, in the hope that the desirability of their inclusion in the college curriculum may become evident (*ibid.*, 153).

Two volumes by Maurice Bloomfield, on *Rig-Veda Repetitions* (xx and xxiv in the "Harvard Oriental Series," edited by C. R. Lanman) appeared early in 1919, illustrating the present delays in publication, since they bear the date 1916 on the title page. These list the repeated verses and distichs and stanzas of the Rig-Veda systematically, with critical commentary, facilitating comparative studies in this field. The same scholar's *Life and Stories of the Jaina Savior Pārśvanātha* (John Hopkins Univ. Press) contains the story of the life of the earlier of the two Jaina Saviors who are historical: he is said to have been born in 817 B. C. It includes, in the usual Hindu form of stories, the fundamental doctrines of the Jaina religion, which are here for

the first time published to the Occidental world.

Bloomfield's "Fable of the Crow and the Palm Tree" (*Am. Jour. Philol.*, xl, 1) is a further article in his proposed encyclopædia of Hindu fiction, on the motif of a chance occurrence misunderstood as a cause; the crow alights on the tree just before it falls, and the bird's trifling weight appears to be the cause of the tree's fall (*cf.* previous studies by Bloomfield, *Jour. Am. Orient. Soc.*, xxxvi, 54; *Proc. Am. Philos. Soc.*, lii, 616, and lvi, 1; and by E. W. Burlingame, *Jour. Royal As. Soc.*, July, 1917, 429). In much the same field is W. N. Brown's "Pancatantra in Modern Indian Folklore" (*Jour. Am. Orient. Soc.*, xxxix, 1), a comparison of the stories found in that work with the forms in which they appear in the recorded current collections.

Franklin Edgerton has a further study in the Rig-Veda (*Am. Jour. Philol.*, xl, 175; *cf.* xxxv, 435, and *Jour. Am. Orient. Soc.*, xxxv, 240) on "The Metaphor of the Car in the Rigveda Ritual," in which he shows that the whole ritual performance is spoken of as a car, after the likeness of the car of the god Indra; on this basis he gives a new translation of the difficult Rigvedic hymns, x. 51-53, with brief explanatory comments.

In general phonetics, A. J. Carnoy, who has now returned to the University of Louvain after a brief stay at the University of California and a longer sojourn at the University of Pennsylvania, has an illuminating article on "The Real Nature of Dissimilation" (*Trans. Am. Philol. Assoc.* xlix, 101), wherein he advances the theory that dissimilation of sounds takes place by the failure to perform one movement of the articulation which the sound has in common with a preceding or following sound, thereby transforming the sound or making it so nearly identical with another sound familiar to the language, that the hearer repeats the word with the changed sound.

In Lithuanian, H. H. Bender makes some valuable observations in his review of *Lalis's Lithuanian-English and English-Lithuanian Dictionary* (published at Chicago), and of Juskevici's *Lithuanian-Russian Dic-*

tionary (incomplete) (*Am. Jour. Philol.*, xl, 321).

In the phonology of Latin, F. A. Wood advances new views on the development of Indo-European *w* after *t d p b m s* in his "Greek and Latin Etymologies" (*Class. Philol.*, xiv, 245), and E. W. Fay does the same on "The Phonetics of *MR*— in Latin" (*Class. Quart.*, xiii, 37). In semantics, I. D. Hyskell, on "Some Rare Meanings of *Excludo*" (*Class. Philol.*, xiii, 401), traces the development of the meaning "to fashion by hollowing out, carving," argues that it is not due to confusion with *excudo*, *excutio*, and *excido*, and restricts the range of meaning of *excudo*. In syntax, R. C. Flickinger presents a further chapter on "The Accusative of Exclamation" (*Trans. Am. Philol. Assoc.*, xlix, 27; cf. *Am. Jour. Philol.*, xxix, 303, and xxxiv, 276), in which he treats this construction from Lucretius to Ovid;

and E. B. Lease writes on "The Use and Range of the Future Participle" (*Am. Jour. Philol.*, xl, 262), showing a very varied and extensive employment. Finally, Tenney Frank has notable observations on two Latin inscriptions of primary linguistic importance: he argues that the *Columna Rostrata* of C. Duellius underwent a restoration about 150 B. C., before its final restoration under the early Empire (*Class. Philol.*, xiv, 74); and he identifies the material of the Forum Stele as coming from north of Cremera, and hence set up either when the Etruscans were masters of Rome or when Rome possessed that part of Etruria. As the latter period is obviously too late, this Stele must, he says, date from the time of the Etruscan dynasty in Rome, which traditionally ended in 509 B. C. (*ibid.*, 87). (See also *Latin Literature*, *supra*.)

XXX. EDUCATION AND EDUCATIONAL INSTITUTIONS

W. CARSON RYAN, JR.

RECONSTRUCTION IN EDUCATION

General Survey.—Recovery from abnormal war conditions, which in the case of education began almost immediately after the signing of the armistice, proceeded rapidly during 1919, until at the close of the year there were few external signs to indicate that a year before the colleges and universities were armed camps and schools of every grade were concentrating on war service. This quick recovery in the field of education was largely due, of course, to the relative shortness of American participation in the war, our remoteness from the conflict, and other general factors. In part, however, it was due to the action of the War Department in settling with incredible promptness and reasonableness the financial relations undertaken on account of the Students Army Training Corps (see *infra*). Although this action affected directly only the higher institutions of the country, its favorable influence reached down to all types of schools.

So far as the fundamental problems of reconstruction are concerned, it must be admitted that the educational programme has made only slightly better progress than the whole lagging programme of social reconstruction. Little has yet been done nationally to put into effect the lessons learned or emphasized during the war. Many of the states, however, were able to enact a considerable amount of educational legislation, which, though it represents no remarkable advance of the whole line, does have the effect of bringing some of the states regarded as backward in education nearer to the general level of progress. This legislation was particularly noteworthy in the fields of continuation schools, elimination of illiteracy in rural communities, Americanization

of aliens, and health and physical education.

The year was characterized by a renewal of international relations in education that will undoubtedly have important constructive effects later. The visit to America of British, French, Indian, and Chinese educational missions of much more than usual importance: reestablishment of the Rhodes Scholarships and creation of foundations like the John Harvard Fellowship; professorial exchanges with South America; not to mention the internationally significant experiment of the A. E. F. University at Beaune, France, with the arrangements for study by American students in the universities of Great Britain, France, and Italy—all these testify to a redeveloping international interest in education, the most important results of which will no doubt appear hereafter.

As the year closes the most serious domestic problem affecting education appears to be the economic one. Salaries paid to teachers, whether in public schools or higher institutions, have never been adequate, and the rapid increase in living costs has produced a situation in which a hundred colleges are appealing for as many millions in endowment funds, mainly to raise instructors' salaries. Cities are conducting campaigns for higher pay for teachers. There is an actual shortage of some 40,000 teachers in rural schools, and another 60,000 positions are filled with teachers wholly unequipped for the work; and the educational profession is stirred as never before over the question of organization of teachers.

"R. O. T. C." Succeeds "S. A. T. C."
—The most immediate and most obvious sign of the transition from war to peace appears in the higher insti-

tutions of the country. As recorded in these pages last year, (A. Y. B., 1918, p. 793), the Students Army Training Corps in the colleges was quickly demobilized after a brief 10 weeks of life. Almost immediately the Reserve Officers' Training Corps was reestablished, and by June, 1919, there were 350 institutions with more than 400 R. O. T. C. units in all and 600 officers and 500 enlisted men had been sent out as instructors. On June 21 Reserve Officers' Training Corps summer camps were opened. Six camps with about 5,000 students were established in the cantonments at Camps Devens, Lee, Taylor, Custer, Funston, and the Presidio of San Francisco. Transportation of the students was paid for by the Government, and subsistence as well as arms and equipment was provided.

Under the R. O. T. C. plan as now in operation the Government furnishes one complete uniform for each student each year, rifles, bayonets, belts, canteens, pack, etc., and ammunition for target practice. The school is required to furnish at least 100 physically fit students to take the course, to provide a bond covering the value of the Government property entrusted to it, and to insure this property against fire. The Army officer detailed to the institution ranks as professor, with the title of professor of military science and tactics; the school provides him with an office and furniture, and the military instruction covers five hours a week for each student enrolled. After the student has completed the basic course of two years, if he continues the work and attends the summer camp, he is paid commutation of rations, about \$12 a month, in cash. After completing the advanced course, the student, if he attends the prescribed camp in summer and is recommended by his professors, is eligible for a commission as second lieutenant in the Officers' Reserve Corps, U. S. Army. The Congressional appropriation for the fiscal year 1919-20 is \$4,000,000.

Discussion over the values, temporary and permanent, of the Students Army Training Corps continues. It will be recalled that when the S. A. T. C. was originally recruited, it was not intended that the student should

be a soldier on active duty. When the American military programme changed, however, and the call for more men came, the status of the member of the S. A. T. C. altered immediately; he was now a soldier on active duty, housed, clothed, and subsisted by the Government and constantly under military control. The unfortunate dualism of authority that resulted from this arrangement makes it difficult to judge the success or failure of the plan as an educational measure and its significance for the future. Now that the S. A. T. C. has passed into history, however, there is a tendency in educational quarters to judge the experiment in a more detached way and an inclination to regard certain educational concepts in the plan for the Corps as worthy of attention.

Especially noteworthy in this respect was the course on the issues of the war which was prescribed in every curriculum. This course combined history, economics, government, literature, and philosophy. It paid no attention to the artificial divisions that have separated these subjects in the past, but aimed rather to bring about a fusion of the essential elements of these and other subjects and to furnish the student soldier with "facts, criteria, and inspirations which would enable him to understand his world and to relate his conduct to the major issues of his life." In many institutions the principles on which this course was based have so far commended themselves to college officers that they are serving as models for organizing the fundamental elements of peace-time humanistic training. Still another important part of the work of the S. A. T. C. plan which might have had important effects if tried over a sufficiently long period was the system of recruitment that was devised, but not put into actual operation, to replace the formal college admission requirements of normal times. This recruitment system combined three elements: (1) a personal interview with each candidate to determine the character of his schooling and experience and his general qualifications for college work; (2) the Army intelligence test; (3) in the case of candidates for courses that by

their professional nature demanded special preparation in one or more subjects, such examinations as would be necessary to test the candidate's proficiency in these subjects.

"Back-to-School" and "Stay-in-School" Campaigns.—School attendance in the United States during the war was never as seriously disturbed as in other countries, but it was found necessary, it will be recalled (*A. Y. B.*, 1918, p. 794), to keep constantly before the public the idea that school attendance must not be allowed to suffer because of the war-time need for labor. It was found desirable to carry over some of this propaganda into the reconstruction period, particularly to combat the tendency towards school leaving that accompanies high wages, economic pressure, depreciated currency, and a higher price level. In general, efforts in this direction have been unusually successful. The returning soldiers have been the best advocates of education. Convinced of the need for it themselves, they have poured back into the colleges and schools and have passed on something of their enthusiasm to the boys and girls below them. "Back-to-school" was the slogan for a campaign in many places. In the summer of 1919 the Boys Working Reserve in Iowa and other agencies in that state entered upon a determined campaign to get boys and girls back into school in the fall. A special back-to-school poster emphasizing the value of education was sent to every county school director in the state, the expressed hope being that "we may be able to create so much sentiment for 'back-to-school' that going to school will be the proper thing to do." A report of the Children's Year activities (see XIV, *Child Welfare*) of the Children's Bureau, U. S. Department of Labor, points out that "every child in school" was the aim of the "Back-to-School and Stay-in-School" campaign undertaken by the Children's Bureau and the Council of National Defense (see also XIV, *Child Welfare*).

The return of the demobilized soldier to school and college has been stimulated in some states by payment of bonus to service men. Oregon pays \$25 a month, eight months in the

year, for four years, and Wisconsin is paying \$30 per month and admitting Red Cross nurses to the benefit. Many benevolent and fraternal organizations are offering scholarships and special funds to returned service men. Aids of this sort inevitably affect the attendance at institutions of below-college grade as well as college and university. The reply of the president of a southern mountain school to one of the church boards that had offered to help him recruit students is perhaps typical. In declining the preferred material he wrote: "We are swamped with students. In our dormitory there are six to a room. I am spending about a fourth of my time writing letters and saying orally to parents that we have no room for their children."

War Survivals in School Service.—The possibilities of permanent national lessons from war service by higher educational institutions have been touched upon in considering the Students Army Training Corps. What of the war survivals in other fields of service by the schools? What of the Junior Red Cross, the U. S. School Garden Army, the war thrift campaign, food conservation, the Boys Working Reserve, the junior four-minute men, and the other agencies that began or emerged during the war and led to prophecies of what might happen in the way of war-modified education? It is still too early to say to what extent these war-time movements will permanently affect the course of education. Some are continuing; others are already abandoned. The Junior Red Cross is going on, apparently with a definite programme for placing the resources of the parent organization at the disposal of the community and nation for the improvement of child health and child outlook upon life. In opening before the children of the schools a wide peace-time field in which they may serve, the Junior Red Cross undertakes to help in two main tasks—"the ameliorization of the unhappy conditions under which thousands of American children live, and the securing of health, happiness, and wholesome surroundings by some of the children of Europe who are suffering from the results of the war." In the

school year that ended in June, 1919, more than 11,000,000 American school children were enrolled in the Junior Red Cross, rather eloquent testimony to the existence of "a mighty spiritual force in the schools that presses for outlet, in peace as in war, in some form of unselfish endeavor." That it is intended to carry forward this project actively during peace times is evident from the establishment, in September, 1919, of the *Junior Red Cross News* as a medium of communication to the schools.

The U. S. School Garden Army, created during the war under the Bureau of Education to utilize the service of school boys and girls in increasing production by working gardens at home and on vacant lots (*A. Y. B.*, 1918, p. 795), has had Congressional sanction twice since the close of the war by appropriations making possible continuation of the work. Reports show that in the summer of 1919 more than two million boys and girls, chiefly in urban communities, a half million more than in 1918, were enrolled in the Garden Army, producing vegetables having a money value of \$48,000,000. The expressed aim of the School Garden Army movement is to make gardening, both at school and at home under the direction of the teacher, an integral part of the school work. A movement for special garden training for elementary teachers has grown out of this, and many normal schools are now offering special courses in gardening, especially in Virginia, Georgia, and Mississippi. That public sentiment is favorable to the incorporation of gardening as a school subject is shown by its endorsement by many local and national organizations. Chambers of commerce, Rotary clubs, and other organizations have been influential in creating public sentiment that has made gardening possible in many towns and cities. Active support of gardening under school supervision has been especially endorsed by the Federation of Women's Clubs and the National Council of Women. These organizations not only pledge their support to the movement, but they also urge the continuation of school-supervised gardening until the subject of gardening becomes an in-

tegral part of the school course. They have also pledged their assistance in securing a 100 per cent. enrollment of the school children in each state. Among the many State Federations of Women's Clubs that are conducting vigorous campaigns for the establishment of school gardens are those of Illinois, New York, Texas, Michigan, Colorado, New Jersey, Kentucky, Massachusetts, Kansas, Oklahoma, Minnesota, Ohio, and Indiana.

The Federal Government, aided by the state departments of education in some of the states, has attempted to keep up the educational side of the thrift campaigns that promised so much during the war. At present writing the result is problematical. One or two states, particularly Wisconsin, Idaho, and California, have taken steps to make thrift teaching an integral part of school work. Wisconsin is stimulating the use of the budget as an element in home-economics instruction. One important result of the national campaign has been the encouragement of textbook making in this important field, and several much needed texts have already appeared.

With the passing of the U. S. Food Administration (see I, *Administration*) the formal national effort to utilize home-economics courses for food saving has come to an end, though something like a temporary revival was being attempted through the Woman's Division of the Department of Justice just before the close of the year.

The Boys Working Reserve as a Federal agency shared the fate of a large part of the war service set up by the Department of Labor for bettering employment conditions in the United States (see also XIV, *Unemployment*). The idea of utilizing city high-school boys for farm work, however, like the Garden Army idea, has important educational implications and is bound to have an influence in determining high-school policies for the future.

The fate of the various periodicals created during the war to promote the war programme through the schools indicates something of the puzzling situation in which most of these war survivals find themselves. *National School Service*, which began in Sep-

tember, 1918, under the Committee on Public Information and was transferred to the Interior Department following the signing of the armistice, was discontinued in May, 1919. While it was going, it carried to 583,000 teachers in the United States, and through them to the school children and the community, messages from Government agencies seeking help in winning the war. Intended for class-room use, it represents without question the most significant attempt yet made to enlist the schools in the service of the Nation. *Boy Power*, the organ of the Boys Working Reserve, should be issued in the summer.

Something similar to the service attempted by *National School Service* magazine during the war, but without the propaganda motive, was begun by the National Geographic Society and the Bureau of Education in October, 1919, with the establishment of a geographic news service to schools. The eagerness with which teachers have applied for this material indicates the need that existed and shows how since the war American schools have tried to make subjects like geography and history live in terms of current happenings. Establishment of the *Junior Red Cross News*, already mentioned, should also be considered in this connection.

School Life, another periodical created during the war but directed primarily to administrators rather than to teachers, has been allowed to continue, partly because its circulation of 40,000 was easily handled, and no special appropriation was required from Congress. This periodical does not attempt, as did *National School Service*, to make Government messages on national affairs into class-room material, but rather to present in the form of news the information collected by the Bureau of Education and other Federal agencies that may have a bearing on the conduct of educational work anywhere in the United States. It has been particularly useful in recent months, for example, in presenting the various campaigns that have been made for higher teachers' salaries by the various cities, thus making it possible for one city to learn what others are doing. This is

of course, carrying out directly the fundamental "clearing-house" function of the Federal Bureau of Education for which it was primarily created.

That the habit of utilizing the schools in a national task is not quite forgotten is suggested by the fact that in preparing for the 1920 census the Director of the Census made a special plea to teachers to help in the task of collecting information, and the U. S. Commissioner of Education issued an urgent appeal to both teachers and school children to assist in educating communities to the importance of the census-taking and the necessity for seeing that it is accurately done.

Reconstruction Programmes.—A number of reconstruction programmes in education, both theoretical and practical, have appeared during the year. One of the first to attract general attention was that of President-Emeritus Charles W. Eliot of Harvard. President Eliot's educational programme for the nation is as follows:

(1) Appropriations from Congress to help the states eliminate illiteracy.

(2) Immediate expenditure by the National Government to aid states and municipalities to teach English to adults of alien birth.

(3) A national programme of education against venereal disease, in which all American schools shall cooperate.

(4) Considerable expansion by the National and state governments of the functions of the medical examiner, the school nurse, and the district nurse.

(5) Addition to all school programmes of instruction in the sciences of observation in the arts and crafts, and in the elements of music, drawing, modeling, and architecture.

(6) Teaching of agriculture to be an important feature in the education of every child in both the urban and rural population.

(7) Reduction in number of school periods assigned to memory subjects and to mathematics; utilization of more hours in the school day and summer vacation.

(8) Better buildings; better laboratory equipment, better teachers; and more money for education.

(9) Support by the National Government of better secondary schools and normal schools.

(10) A complete course in physical training for every child, the National Government to plan and enforce the course and pay part of the expense.

(11) Development of spirit of patriotic, cooperative service on the part of all boys and girls; "team play."

(12) Conveying of fundamental religious ideas to every American child and adolescent in the schools.

One of the most ambitious attempts to formulate an after-war programme

for public education is that of Frank E. Spaulding, member of the Educational Corps Commission, A. E. F., and superintendent of public schools of Cleveland, Ohio. Dr. Spaulding's plan was published in Bulletin 96 of the A. E. F. University. It is especially important, not only because of Dr. Spaulding's record as a school administrator and his high standing in educational circles, but also because it came directly out of the unusual experience with the A. E. F. University at Beaune (see *infra*). Dr. Spaulding says:

We have long deceived ourselves with words and phrases about free public, universal education. Up to the present time we have barely the beginnings, here and there, of such an effective educational programme as these terms ought to imply. The educational task immediately before us is to make universally real the ideals which we have long boasted.

He sets forth three definite educational objectives: (1) essential elementary knowledge, training, and discipline; (2) occupational efficiency; (3) civic responsibility. These three objectives, he points out, involve other objectives, such as character, culture, health, and physical wellbeing, without which the three objectives cannot be achieved; and, he adds, even if it were possible to achieve these objectives without character, culture, and health, of what significance would they be? To achieve the first of these objectives four factors are necessary: first, a minimum school year of 36 weeks; second, adequate laws effectively enforced, compelling regular attendance throughout the school year of all children over a certain age, preferably seven, until the elementary course is completed, or until a certain age, preferably 16, is reached; third, effective public control of private schools, to ensure the maintenance of standards equal to those maintained in public schools, and to ensure the regular and full attendance of pupils registered therein; fourth, a teaching force every member of which has a general education at least equal to that afforded by a good four-year high-school course, and professional training at least equivalent to that provided by a good two-year normal-school course.

Reorganization of Secondary Education.—Another report that is already having a profound effect in directing the course of American education after the war is the report of the National Education Association Commission on the Reorganization of Secondary Education. Sections of the report have been issuing for the past three years, but in 1919 the final summary of the report, entitled "Cardinal Principles in Secondary Education," was published as a bulletin of the U. S. Bureau of Education. This summary presents in the brief space of some 30 pages "various important principles to guide the reorganization of America's most distinctive educational institution, the public high school." As a basis for its presentation the Commission holds that "the purpose of democracy is so to organize society that each member may develop his personality primarily through activities designed for the wellbeing of his fellow members and of society as a whole." The Commission would focus secondary education upon what may be called the great social objectives, such as health, citizenship, vocation, worthy use of leisure, and ethical character. "Too long have the schools conceived their task under vague generalities, such as intellectual discipline," it says, "and too long have they taught formal types of knowledge bearing little evident relation to the problems of service and worthy living." One of the main problems of education in the reconstruction period will be so to organize instruction that it will apply more directly and specifically to worthy living in democratic society. This implies no mean, narrow, bread-and-butter conception of education. On the contrary, the Commission holds that the division of education into separate stages, the first general and the second vocational, is unsound. Health needs are important at all stages; the vocational aspect is valuable in the early stages as giving greater purposefulness to schooling, while preparation for citizenship and the worthy use of leisure involve phases which require maturity on the part of the pupil.

Furthermore, it is only as the pupil sees his vocation in relation to his citizenship and his citizenship in the light

of his vocation that he will be prepared for effective membership in an industrial democracy. Consequently, the Commission enters its protest against any and all plans, however well intended, which are in danger of divorcing vocational and social-civic education. It stands squarely for the infusion of vocation with the spirit of service and for the utilization of culture by genuine contact with the world's work.

The Commission favors a six-year elementary school, followed by six years of secondary education, the latter to be divided into two periods corresponding to junior and senior high schools.

Labor's Programme in Education.—No record of reconstruction programmes of the year would be complete if it failed to include the pronouncement of organized labor on this subject, especially in view of the recent movement for affiliation of organizations of teachers with the American Federation of Labor (see *infra*). The section of the Federation's reconstruction programme dealing with education is as follows:

Education must not be for a few, but for all our people. While there is an advanced form of public education in many states, there still remains a lack of adequate educational facilities in several states and communities. The welfare of the Republic demands that public education should be elevated to the highest degree possible. The Government should exercise advisory supervision over public education and where necessary maintain adequate public education through subsidies without giving to the Government power to hamper or interfere with the free development of public education by the several states. It is essential that our system of public education should offer the wage earners' children the opportunity for the fullest possible development. To attain this end State colleges and universities should be developed.

It is also important that the industrial education which is being fostered and developed should have for its purpose not so much training for efficiency in industry as training for life in an industrial society. A full understanding must be had of those principles and activities that are the foundation of all productive efforts. Children should not only become familiar with tools and materials, but they should also receive a thorough knowledge of the principles of human control, of force and matter underlying our industrial relations and sciences. The danger that certain commercial and industrial interests may dominate the character of education must be averted by insisting that the workers shall have equal representation on all boards of education or committees having control over vocational studies and training.

To elevate and advance the interests of the teaching profession and to promote popular and democratic education, the right of the teachers to organize and to affiliate with the movement of the organized workers must be recognized.

A more detailed view of labor's attitude with respect to education and child labor, in so far as this has been officially accepted, may be seen in the "minimum standards for children entering employment" adopted by the Children's Bureau conferences in May and June, 1919 (see XIV, *Child Welfare*).

National and State Legislation.—

When it comes to significant action for the year in the direction of reconstruction in education in the light of such pronouncements as those of President Eliot, Dr. Spaulding, the Commission on Secondary Education, or organized labor, it is rather to the states than to the Federal Government that we must look. Here and there the states have taken themselves very seriously inaugurating educational programmes. Alabama, following a state-wide survey by the Federal Government, adopted a complete school code which represents years of advance in the administration and support of public education in the state. Georgia, with the passage of the Elders-Carswell bill on Aug. 13, took important steps forward by requiring every county to levy from one to five mills in addition to state appropriations, providing increased appropriation for vocational education, and strengthening the compulsory-attendance law. Delaware, aided by a survey by the General Education Board and by one of the greatest gifts ever made to public education, set herself to providing adequate education for every child within her three counties. Massachusetts, modifying the practice of centuries of sole local responsibility, has undertaken for elementary education a programme which involves a general state fund of several millions, higher minimum salaries for all teachers with increases for professional training, and a state education authority with clearly defined duties and responsibilities. Not to be outdone by the states, the Philippine Islands, through the all-Philippine legislature of 1919, appropriated \$15,000,000 to extend free education to

all the children of the islands, thus doubling the quantity of the educational work effected in almost two decades of previous American occupation (see also VII, *Territories and Dependencies*).

Federal legislation for education has made only slight advances over a year ago. The Smith-Towner bill (revised), providing for a Federal Department of Education and Federal aid for elementary schools (*A. Y. B.*, 1918, p. 790), was one of the first bills introduced in the first session of the new Congress. It has been the subject of hearings before committees of Congress and has called forth a considerable amount of endorsement, together with some opposition, chiefly from those, on the one hand, who fear

that the setting up of a department may mean central control, or, on the other hand, from those who accede to the idea of a department, but do not believe the time is ripe for a preconceived plan of Federal aid. Still another group, a relatively small group, would prefer a Federal board rather than a department. In general, however, the Smith-Towner bill has made progress in both houses of Congress and in the country at large, especially in its revised form, which answers most of the objections usually made to a Federal measure of this sort. The Kenyon Americanization bill, recently reported by the Education and Labor Committee of the Senate, is described in a subsequent section.

AMERICANIZATION

Importance and Difficulty of the Task.—Growing recognition of the importance as well as the delicacy of the task of Americanization has characterized the progress of the year in this field. Revelation of the figures secured by the Surgeon-General's Office of the Army, made during the year, indicated that the problem was probably worse than had been shown by the previous estimates, which were based on the 1910 census. It will be recalled (*A. Y. B.*, 1918, p. 797), that calculations based on the 1910 census and partly checked with the first draft army indicated some seven or eight per cent. of illiteracy. Investigations made at the Army camps by the psychology section of the Surgeon-General's Office preliminary to the use of intelligence tests showed that a much larger proportion of this, the younger and therefore better educated generation, was illiterate in a practical sense, unable to read the newspaper or write a letter home. The proportion ran from 17.8 per cent. in one camp to as high as 41.8 in another. At Camp Dix, where the division was made on a straight "read-and-write" basis without consideration of school attendance, it was found necessary to send 29.2 per cent. to "Beta," that is, to take the special examination set for foreign and illiterate groups. At Camp Gordon the percentage was 25.3; at Camp Pike, 28.8; at Camp

Upton, where reading of newspapers was the test, 23.5. No section of the country could receive much comfort from the figures as made public. White native soldiers from the South were almost as frequently illiterate as colored soldiers, and the numbers of non-English-speaking illiterate youths from New York, New Jersey, and New England were such as to destroy any confidence the North might have that it had reached all of its people with education. Illiteracy proved to be clearly a national problem in which all sections were equally concerned.

Citizenship Education for the Alien.—The problem as presented in figures of literacy and illiteracy appears largely a mechanical one, readily solvable if the states and the Nation will but do their duty in providing schools for all and seeing that they attend as they have not done before. But it is when Americanization becomes a problem of citizenship, as it inevitably does, and as it has been suddenly realized to be in the past year by the general public, that it becomes serious and difficult. Events of the year have shown not only that literally millions of American citizens cannot read and write the language of the country and that several more millions cannot even speak or understand the language, but that these conditions constitute a menace to the existence of the Republic (see also I,

American History. How to help these people along the road to better citizenship; how to give to them the American vision without sacrificing what they have brought with them from an older civilization; how to make them realize the opportunities of America without turning against her in the hour of need—these are the deeper problems, and they are essential problems of education.

Realization of this fundamental fact was impressed upon the Education and Labor Committee of the Senate in its investigation of the steel strike in the fall of 1919. Immediately upon their return to Washington the members of the Committee set to work considering the various measures that had been referred to it for an Americanization programme for the Nation. Instead of reporting any one of these bills the Committee, of which Senator Kenyon of Iowa is chairman, reported unanimously a substitute, which provides in brief as follows:

Authorizes and directs the Secretary of the Interior to cooperate with the states in the education of illiterates or other persons unable to understand, speak, read, or write the English language.

Appropriates, for the fiscal year ending June 30, 1920, \$5,000,000, and annually thereafter until June 30, 1923, the sum of \$12,500,000. Funds to be apportioned among the states according to the number of resident illiterates and non-English-speaking persons over 16 years of age in the population.

To receive aid the state must accept the provisions of the Act: designate an appropriate official to act as custodian of the money; authorize the state department of education or chief school officer to cooperate, appropriate or make available as much money as is allotted to the state by the United States; require illiterates and non-English-speaking persons between 16 and 45 to attend classes of instruction for not less than 200 hours per annum until they shall have completed a specified course approved by the Secretary of the Interior.

Federal aid is to be used for salaries of teachers, supervisors or directors of education, and not for buildings and equipment, which must be furnished by the states.

The Kenyon bill, amended to make the appropriation \$6,500,000 for the year 1920-21 passed the Senate on Jan. 26, 1920.

Training of Teachers for Americanization.—One of the subjects discussed at the Americanization con-

ference in Washington in May, 1919, was the type of teacher and the training required for work with the foreign-born. New York and Massachusetts are two states that have given special attention to this phase of the problem. In Massachusetts extension courses have been adopted as a means of training. Since July, 1918, when the first summer course in "methods of teaching English to immigrants" was given to a class of 35 teachers at the Hyannis Normal School, more than 2,000 Massachusetts teachers have been trained to give instruction to non-English-speaking men and women, according to a report of the director of university extension for the state. Legislation enacted in 1919, whereby cities and towns are remunerated by the state at the end of each school year for one-half their expenditures for immigrant education, caused a heavy demand for teachers, and the summer courses were supplemented with winter course in methods. At the summer session at Hyannis in 1919 a new course on "organization and supervision of Americanization" was attended by representatives of 54 cities and towns in Massachusetts and a number from five other states. School superintendents, principals, teachers, and social workers took the courses.

State Action on Illiteracy.—Federal activity in eliminating illiteracy, especially in rural communities, has already been preceded by excellent work in one or two southern states. Alabama provided special agents in individual counties. This work grew directly out of the war work in illiteracy in Alabama, where 3,636 of the 8,135 soldier illiterates reported were taught to read and write. Kentucky has long had an Illiteracy Commission at work, in anticipation of the 1920 census. In Louisiana the state Superintendent of Education arranged with local school officials in parishes where adult illiteracy is high to supply special teachers for the summer months and organize classes among adult illiterates at convenient hours during the day and evening. The North Carolina programme for rural improvement has the elimination of illiteracy as one of its first aims.

HEALTH AND PHYSICAL EDUCATION

New Physical Education Laws.—

Six states have enacted new physical-education laws during the year, Washington, Oregon, Utah, Maine, Michigan, and Indiana. The Washington and Oregon laws provide for courses in physical education for elementary schools averaging 20 minutes each day. Utah provides for a state director of health education whose salary and expenses shall be paid out of the state school fund (see *infra*). Maine requires an "adequate course in physical education" in all public schools of the state, with a minimum limit of 20 minutes per day in elementary schools and two hours per week in high schools; an appropriation of \$15,000 is made. Michigan requires physical education in all elementary and secondary schools in communities of more than 3,000, and Indiana provides that all accredited normal schools shall require for graduation a course in physical education. Thirty-nine states now have legal enactments for health work or physical education. Of these, 25 are for health work only; four for physical education only, and 10 have laws covering both health work and physical education. Few recent attempts to solve the problem of military training apart from the enactment of general physical-education laws are to be recorded. Considerable discussion has taken place over the advisability of such laws as that of New York. Congress has not yet given serious attention to any of the plans for universal military training.

Policies in Health Education.—Increasing emphasis on positive teaching of health rather than negative teaching of disease, a tendency to consolidate agencies in the health-education field and to regard the whole problem as an educational problem have characterized the year just past. "Teaching Health," the first pronouncement of the year from the Bureau of Education, expressed the national policy thus:

We must learn to think of health in terms of strength and beauty and joy, rather than weakness and disease. We must imbue the attainment of health with the spirit of a glorious game, following the laws of health as we would obey the

rules of the game. "Thou shalt!" must take precedence of "Thou shalt not!"

Health must not be taught didactically but by personal example and object lessons. Frequently it must be taught indirectly rather than directly.

The teaching of health, moreover, cannot be confined to any one lesson period, but can be introduced into almost every study in the curriculum. It is often chiefly a matter of emphasis rather than formal instruction.

Finally, definite amount of time should be allowed every school day from the kindergarten upward for health inspections, the discussion of health problems, and for other health activities.

A similar spirit underlies the programme of the Junior Red Cross, with its emphasis upon practical courses in home hygiene, study of health needs in schools, and stimulation of recreation opportunities.

Because it is specifically designated a "health-education" law and includes service for children of pre-school age as well as school children, the Utah health-education law of 1919 is regarded as unique in educational-hygiene legislation. The law is unusually brief, but comprehensive, and for this reason it has been discussed more than most state laws of this sort. Its provisions are as follows:

The State Department of Education appoints a state director of health education, who exercises "general supervisory control of health education in the public schools of the state, consisting of hygiene, sanitation, physical education, and recreation." He is to advise with local boards of education in regard to effective means of preserving and promoting the health and physical welfare of school children and children of pre-school age.

Health education is required of all teachers in the public schools of the state, the present teachers having three years in which to meet this qualification.

The boards of education of all school districts are authorized to adopt such reasonable measures for health education as may be necessary, including the education of parents in matters pertaining to child welfare. Consent of parents must be obtained. A committee consisting of the state director of health education, the dean of the State School of Education, the dean of the Department of Medicine of the University of Utah, the secretary of the State Board of Health, and the director of the Department of Home Economics at the State Agricultural College, is designated to recommend plans for this work.

Sex Education.—The Division of School Hygiene of the Bureau of Education and the Division of Venereal

Diseases of the Public Health Service have worked together during the year in an effort to contribute toward the solution of the difficult and important problem of sex education. The endeavor has been to work out the principles and methods whereby sex may be taught in its normal relations. Twelve conferences for the purpose of exchanging views, making known successful experiences, arousing intelligent interest, and acquainting teachers with methods of sex instruction in connection with courses in biology, physical education, civics, domestic science, and English literature have been held in 11 eastern states. Each conference was of two days' duration. The average attendance, 206, consisted of teachers intelligently interested in the problem.

The Interdepartmental Social Hygiene Board, created by act of Congress in 1918, the membership of which includes the Secretaries of the Navy, War, and the Treasury and the Surgeons-General of the Navy, the Army, and the Public Health Service, is disbursing \$300,000 a year for the years 1919 and 1920 to

such universities, colleges, or other suitable institutions or organizations as, in the judgment of the Interdepartmental Social Hygiene Board, are qualified for

scientific research for the purpose of discovering and developing more effective educational measures in the prevention of venereal diseases and for the purpose of sociological and psychological research relative thereto.

The Board has taken the position that it would be unwise to support measures or demonstrations involving the presentation of the venereal diseases as a separate and distinct subject in the school programme, but that, on the contrary, "consideration of venereal diseases should be woven into the general subject matter of hygiene, so that the causes, the carriers, the injuries, and the prevention of these diseases should be considered in their important relationship with the causes, carriers, injuries, and prevention of other diseases." In pursuance of this policy allotments have been made to 30 colleges, universities, and normal schools to assist them in developing departments of hygiene. The Board has further proposed to the chief educational officer of each state to assist in the establishment within the state department of education a division of educational hygiene and courses in the principles and practices of hygiene in all the educational institutions of his state. See also XIV, *Social Hygiene*; and XXV, *Public Health*.)

VOCATIONAL EDUCATION

Developments under the Smith-Hughes Act.—The extent to which the states have responded to the opportunity held out by the Smith-Hughes Act for providing Federal aid for vocational education is indicated by the increased expenditures for vocational education. In agriculture, the 1919 report of the Federal Board for Vocational Education shows, the total sum allotted to the states for the year 1917-18 was \$547,028; of this, approximately 50 per cent. was expended. In the year 1918-19, there was allotted for agriculture \$782,576, of which approximately 75 per cent. was expended. The total fund available for trade, home-economics, and industrial education for 1917-18 was \$564,445, of which the states expended approximately 65 per cent. The total available for 1918-19 was \$794,464, of which the states expended approxi-

mately 80 per cent. There was allotted to the states for teacher training for the year 1917-18, \$544,114, of which 36 per cent. was expended. The allotment for 1918-19 was \$730,421, of which approximately 70 per cent. was expended. For the year 1917-18 there was available for all forms of vocational education Federal funds to the amount of \$1,655,587, of which approximately 50 per cent. was expended. For the year 1918-19 there was available from Federal funds for all forms of vocational education, \$2,307,460; of this amount approximately 75 per cent. was expended. In 40 of the 43 state legislatures meeting in 1919 provisions were made for appropriations for the promotion of vocational education in excess of those provided by previous sessions of the legislatures.

A total of 2,039 schools of all types

are reported as having received reimbursement from Federal funds in the year ended June 30, 1919, an increase of 298 over 1918. Of the schools Federally aided in 1919 more than two-fifths, or 42 per cent., were agricultural, 28 per cent. were trade or industrial, 23 per cent. were home economics, and seven per cent. were general continuation part-time schools. Some 25 states now require attendance upon part-time or continuation schools, largely as a result of legislation enacted in 1919.

Vocational Rehabilitation of Soldiers and Sailors.—The plan of vocational reëducation for disabled soldiers and sailors has gone on under considerable difficulties, most of which were foreseen. As a result of the President's veto of the Sundry Civil bill of 1919 (see I, *Congress*), the fund available under the Smith-Sears Act (A. Y. B., 1918, p. 802) has been increased from \$6,000,000 to \$14,000,000. Further changes in the law affecting the relations of the Federal Board for Vocational Education to the Bureau of War-Risk Insurance have simplified the administration by relieving the Bureau of responsibility for certain details and centralizing the administration in the Federal Board. The passage of the Sweet bill (December, 1919) has still further liberalized the educational opportunities for disabled soldiers. On Aug. 1, 1919, the Federal Board had in training over 6,000 returned soldiers, sailors, and marines, in about 1,000 institutions, including schools, colleges, universities, factories, farms, and offices. More than 147,000 men have been registered and given their medical examinations upon application for vocational rehabilitation; more than 100,000 cases have been surveyed by representatives of the Federal Board, and over 14,000 cases have been approved for training.

Education for Foreign Trade and Commerce.—With an enormous tonnage of merchant ships on our hands

and "the greatest yards in the history of shipping," as one Government authority describes it, the Nation is faced with the educational task of training men to manage and operate these ships and handle the business involved in a tremendous foreign commerce. Special vocational education projected for foreign trade and shipping is to reach the following groups, in the judgment of the Federal Board of Vocational Education:

(1) Clerks, department heads, and junior officers who must learn to do the routine and technique of the daily duties of exporting.

(2) Expert managers and candidates for promotion to this position, who lack knowledge of technical detail, which must be supplied even if it be not part of the daily work.

(3) Executives or owners of firms doing or intending to do a foreign business, who wish to be well informed on all phases of the general subject as well as on specific routine.

(4) Men who are to be sent overseas by the firm and must prepare for actual foreign field service within a few months.

(5) College students who wish to enter foreign trade.

(6) High-school pupils who may enter an exporting house but may not be sent abroad for several years.

(7) Engineers and technical men. These men to be trained from the standpoint of salesmen of technical products, in such lines as railroad-construction contracts, railroad equipment, power plants, telephone plants, electric street-car systems, bridge and harbor works, elevators, radiators, heating systems, etc. These men will be all trained in their technical lines but will need courses of instruction which will fit them for service in connection with foreign sales.

Several conferences held during the year under the auspices of the Bureau of Education, the Federal Board for Vocational Education, the Bureau of Foreign and Domestic Commerce, the National Society for Vocational Education, and other agencies have been devoted to the problems of training for foreign service. A series of textbooks on shipping is now in course of publication (D. Appleton & Co.) under the joint auspices of the Shipping Board and the Federal Board for Vocational Education.

TEACHERS' PROBLEMS

Teacher Shortage and Teachers' Salaries.—The problem of the college teacher and his salary is being brought home to many of America's leading

citizens through campaigns conducted for increased college endowments, chiefly to pay better salaries to the instructional force. Harvard, Prince-

ton, Cornell, to name but a few of the institutions that are on everybody's lips, are all asking amounts from \$14,000,000 down. The economic position in which education finds itself is a critical one alike for the individual, the institution, and society.

The problem in the public schools has been no less acute during the past year. An investigation by the School Board Service Division of the Bureau of Education early in 1919 seemed to indicate a shortage of close to 50,000 teachers. A more detailed study made by the National Education Association in October, 1919, revealed an actual shortage of nearly 40,000, with more than 60,000 teachers below standard. At least one-fourth of the teachers in the service left during the year. Even more alarming is the drop in normal-school attendance. The total attendance in 78 normal schools and teacher-training schools located in 35 different states for the year 1916 was 33,051. In 1919 the attendance in these same schools had fallen to 26,134. The total number of graduates from these schools in 1916 was 10,295; in 1919 it was 8,274. The total number in the graduating classes of 1920 in these 78 schools is 7,119. These figures show a decrease of over 30 per cent. in four years in the finished product of these schools.

As the year closed the states and cities were struggling to have salaries raised to retain the teachers. Rural schools have suffered most of all. A recent questionnaire sent to the leading towns and cities in Texas showed that they had lost during the year 34 per cent. of their male teachers and over 20 per cent. of their female teachers. County superintendents reported a loss of 33 per cent. of their male teachers and 30 per cent. of the female teachers. Pennsylvania, New York, Massachusetts, and Indiana are among the states that have made legislative provision for a state-wide increase in salaries, particularly in rural communities. In Indiana the minimum-salary law was changed in such a way as to grant an increase to all teachers averaging about 25 per cent. The new law in Pennsylvania provides for a minimum salary of \$60 a month for teachers holding the lowest grade of certificate, with a gen-

eral increase in all salaries of approximately 25 per cent. on the average. The New York law also provides a substantial raise, varying from \$100 a year up. The conviction is generally growing, however, that slight percentage increases of this sort will do little good. Significant is the action of the Boston teachers, for example, in asking a flat increase of \$600 to bring salaries up to a cost-of-living basis. It is literally true that the present salary scale for a large proportion of teachers is below the poverty budget line, that is, the lowest amount social economists consider sufficient to maintain paupers.

Teachers' Organizations.—The year has been conspicuous for rapid developments in the organizing of American teachers. As the annual report of the Commissioner of Education points out, "the teachers of the United States are organizing, and the only question is as to what form the organization will take," whether a development and extension of the National Education Association, or affiliation with the American Federation of Labor, or both. Hitherto American teachers have kept more or less in isolated groups, the same report points out. They have shown the gregarious instinct, but their coming together has been rather in numerous sections of the teaching body than in any large, all-inclusive national organization. There were 531 educational associations listed in the *Educational Directory* of the Bureau of Education for 1918-19. Of these, 200 were classed as national and sectional, 243 as state associations, 39 as city bodies, and 53 as learned and civic organizations. The few associations with claims to national scope have never enrolled more than an exceedingly small percentage of the total number of teachers. The National Education Association, for years the recognized association of teachers, prior to 1918 never exceeded an active membership of 10,000. During the year 1919 the tendency for all teachers to come together in a national movement has been marked. The National Education Association, as a result of a systematic drive for membership, ran its figures up to 30,000 (December, 1919), and the Amer-

ican Federation of Teachers, affiliated with the American Federation of Labor, which had scarcely two dozen "locals" and a thousand or two members on July 1, 1918, by Jan. 15, 1920, had 145 local unions and had enrolled some 20,000 teachers. These are, however, small numbers, exceedingly small when it is considered that there are approximately 750,000 teachers in various types of educational institutions throughout the United States, and especially small as compared with England, where out of 108,732 certificated teachers, 101,994 are members of the National Union of Teachers.

Recent activities of the National Education Association have recognized the need for larger membership and more effective organization. The programme of active service adopted at the Pittsburgh meeting in 1918 was emphasized at Milwaukee in 1919. The Association realizes that to carry out this programme the teachers must work collectively. Accordingly, the Milwaukee meeting amended the by-laws of the Association to make active membership easier for the classroom teacher. A plan for reorganization of the Association to provide for affiliation of state and local bodies of teachers failed for various reasons, some legal and technical, but the idea of a better working coöperation among teachers everywhere was enthusiastically endorsed and has been aggressively carried forward.

Teachers' Unions.—Originating at Chicago in 1912, the teachers'-union movement made comparatively slow progress until 1918. On July 1 of that year there were 23 local unions in the American Federation of Teachers, which had been organized and affiliated with the American Federation of Labor in the spring of 1916. The greatest growth has taken place in 1919. By May 1 the number of locals had increased to 72, and, as indicated above, shortly after the close of the year it had reached 145, including organizations not only of public-school teachers, but of normal-school and college and university instructors as well. At least one state federation (California) has been formed through state aggregation of teachers' unions. Among the higher institutions where teachers' unions have recently been

formed are Harvard University, Columbia University, the University of Montana, Wellesley College, the University of Illinois, College of the City of New York, Wilson Normal School, Washington, D. C., Normal University, Normal, Ill., and the North Dakota Agricultural College.

The object of the American Federation of Teachers, according to the constitution adopted at Pittsburgh on July 5-6, 1918, is to bring associations of teachers into relations of mutual assistance and coöperation; to obtain for them all the rights and benefits to which they are entitled; to raise the standard of the teaching profession by securing the conditions essential to the best professional service; and to promote such a democratization of the schools as will enable them better to equip their pupils to take their place in the industrial, social, and political life of the community. Affiliation with the labor movement is explained by the Federation as follows:

The American Federation of Teachers came as a result of years of experience on the part of teachers in a dozen cities throughout the country. They found themselves unable to combat with success well organized influences inimical to the best interests of public education. They had studied the field carefully to discover the strongest democratic force with which they might ally themselves. This force they found in organized labor. Admitting all its imperfections, it is still the greatest single force which recognizes and combats the very influences which are immediately threatening to choke the spirit of democracy in the schools. Condemning as heartily as any the misdeeds of individuals in the labor movement who deserve condemnation for their misrepresentation of the ideals and methods of union labor, these bodies of teachers think they find in union labor's essential altruism and fairness the best hope for America's future.

Naturally affiliation of teachers with organized labor, especially in a year characterized by industrial unrest, has caused widespread discussion of the rights of teachers, as well as of other public employees; to join with union labor. Some educators are bitterly opposed; others, including men like Prof. John Dewey, not only see no objection, but, on the contrary, welcome the recognition by teachers of the bond that exists between teachers and other workers. A few school boards, following the example of the Chicago Board a few years ago, are

taking drastic steps to stamp out unionism. Los Angeles is the latest city to try elimination of teachers' unions through school-board action.

Without attempting to go into the merits of the whole controversy, it should be pointed out that since 1912 employees of the Federal Government have been allowed to unionize, under specific authorization from Congress, and that in the past two years there has been a considerable growth in unionism among Government employees at Washington, until at present a majority of the employees of the Federal departments, including scientists and technical workers whose professional standing is comparable with that of teachers, are members of unions affiliated with the American Federation of Labor. The right of Federal, state and municipal employees to organize, though not to strike, is further endorsed in the tentative report of the President's Industrial Conference, made public on Dec. 29. Since the strike issue is

most often raised in this connection, it should be said that the teachers, like the Federal employees, assert that they do not use the strike or advocate it in dealing with the Government. The Federal employees' unions have a specific anti-strike clause in their constitution, and the American Federation of Teachers, without mentioning strikes at all in its constitution, give prominence to the following statement in its literature:

Under the constitution of the American Federation of Labor, the American Federation of Teachers retains complete autonomy. It would be impossible for the American Federation of Labor to order a strike. The constitution of the American Federation of Teachers contains no provision for strikes. In the nature of the case teachers must place their chief dependence on an aroused public opinion and political action.

The officials of the Federation further assert that their organization frequently prevent strikes, and they point out that the only strikes of teachers during the year were of teachers not organized and affiliated.

INTERNATIONAL RELATIONS IN EDUCATION

Resumption of Foreign Relations in Education.—Educators and educational institutions have not waited for the League of Nations to resume old international relations in education or to make permanent new ones arising from the war. Beginning with the French and British educational missions, a veritable stream of educational visitors has come to this country since the war. To the professorial exchanges of France have already been added those with Great Britain and South America. The Rhodes Scholarships are being supplemented with American scholarships for English students and French fellowships for American students. The U. S. State Department took a hand in the summer of 1919 in seeking to make known to foreign nations the opportunities for study at higher institutions in America. The International Labor Conference and the International Congress of Working Women (see XV, *Labor*) in discussing labor problems, found themselves deciding questions of educational policy and opportunity. The presence of thousands of American college stu-

dents on military duty in Europe, the establishment of the A. E. F. University at Beaune (see *infra*), and the opportunities for study in European centers, all made education an international question to thousands of men who had perhaps never thought of it in international terms before. Definite proposals for an International Bureau of Education have been set up by responsible officials of several countries and endorsed by educational associations.

The British Educational Mission.—In response to an invitation from the Council of National Defense, Great Britain and France, even before the close of the war, had arranged for educational missions to the United States. An influential British Educational Mission arrived in this country in October, 1918, spent two months in a tour of the eastern half of the United States, visiting some forty or fifty institutions of higher learning, and returned to Great Britain early in the new year. The report of the Mission, issued in February, 1919, urged a systematic interchange of teachers and students between Great

Britain and America as "the most powerful aid towards a closer relationship and a better understanding between the two countries." The Mission recommended that the proposed educational interchanges should include both teachers and students; among students, both graduate and undergraduate; and among teachers, both lecturers or demonstrators and professors. An organizing and advisory committee on the part of the British universities is suggested, to deal with a similar committee on the American side. The report concludes with recommendations for other steps in the interchange process, as follows:

(1) the endowment of traveling scholarships; (2) the institution of part-time lectureships available for Americans pursuing advanced work in Britain; (3) the granting of periodical leave of absence, with half or whole pay, to younger British teachers, to enable them to take up similar appointments in American colleges.

Reports received toward the close of the year indicate that a considerable part of this programme has already been accomplished, though actual interchange has been delayed by the difficulties of transportation and by the unforeseen enormous increase in attendance at British universities. The individual members have stirred up interest in the exchange idea, changes in admission requirements have already been announced, and a number of the British universities have begun furnishing material descriptive of the opportunities available for American students.

Resumption of Rhodes Scholarships.—Appointments to Rhodes Scholarships from the United States, which were temporarily discontinued during the war, were resumed in November, 1919, when the names of 63 American students designated for study at Oxford University were transmitted for ratification to the Rhodes Trustees by Prof. Frank Aydelotte of the Massachusetts Institute of Technology, American Secretary for the Fund. The designations include one representative from each state and two from the following 15 states, which under normal conditions would have appointed scholars both for 1918 and 1919: Alabama, Ar-

kansas, California, Colorado, Georgia, Iowa, Kansas, Minnesota, Mississippi, Missouri, Nebraska, Oregon, Texas, Washington, and Wisconsin. Resumption of the Scholarships was accompanied by significant changes in the methods of selection, intended to answer charges, on the one hand, that American students at Oxford did not come up to the expected level of ability, and, on the other hand, that the plan did not attract the best American students. The qualifying examination required of all candidates in the past has been abandoned, the requirements as to the nomination and endorsement by college officials have been modified, and a new system of selecting officials has been set up in which former Rhodes scholars are to play an important part.

Fellowships in French Universities.

—Professorial exchanges with France had already existed before the war. The visit of prominent French educators, constituting the French Educational Mission, stimulated the idea of exchange. During the year the Society for American Fellowships in French Universities, which in 1917 published a volume on *Science and Learning in France*, announced appointments of 25 American students to fellowships in French universities. The fellowships thus created will be of the value of \$1,000 a year for two years. A feature of the plan is that these scholarships will be open not only to college graduates, but also to those with experience in industrial establishments in work requiring high technical skill. The object of the Society in establishing the fellowships is to "assist in establishing in its proper place of eminence in the mind of the American public the standing and repute of French scholarship."

Exchange Professorships with Chile.—A system of exchange professorships between the Republic of Chile and universities and schools in the United States has recently been worked out, and the first two representatives from the United States will leave early in 1920 for their South American posts. Under the plan adopted each country will pay the salary and traveling expenses of its own professors, receiving in exchange, free of charge, the professors

from the other country. The exchange is directed in the United States by the Committee on Hispanic-American Relations of the University of California.

A Commission from India.—Two members of a British Commission on Indian Village Education toured the United States during June and July, visiting American rural schools for white and colored children as a preliminary to their visit to India. From continental United States the members of the Commission next visited Japan and the Philippines. In Japan the Commission studied the attempt by an Oriental people to relate education to the national tradition and spirit. They also investigated the work of the voluntary associations of adults that have been formed in rural districts for economic, moral, and intellectual improvement. The Commission gave special attention to the Philippines because of the special problems that have been handled in the islands under American occupation.

American University Union in Europe.—Significant of the continuance of educational relations with the principal countries of Europe is the establishment on a permanent basis of the American University Union in Europe. This Union was organized during the war

to meet the needs of American university and college men and their friends who are in Europe for military or other service in the cause of the Allies, and to serve as a bond between the universities of America and those of European nations especially, by encouraging in such ways as the trustees may see fit the attendance and advancing the welfare of American students at the representative universities of France, Great Britain, and Italy.

Representatives from 40 of the leading American universities and colleges, meeting at New York in the summer of 1919, voted to continue the work on a permanent basis at Paris and London. The board of trustees will hereafter consist of representatives of American universities and university associations, with the director of the American Council on Education (*A. Y. B.*, 1918, p. 789) and the director of the Institute of International Education as *ex-officio* members. The Union plans to erect a

permanent headquarters building in Paris, on land donated by the city.

The Institute of International Education.—Early in 1919, as a result of the visits of the British and French missions to this country, the Institute of International Education was established, under the Carnegie Endowment for International Peace. The official announcement of the Institute states that it expects to serve in the preparing and disseminating of information concerning institutions, types of training, graduate instruction, and individual courses in the United States; in tabulating fellowships, scholarships, and other financial aids to students; in the interchange of professors and other leaders, in visits of foreign missions, and international scholarships.

The A. E. F. University.—What is characterized as "perhaps the most spectacular educational event of recent years" was the establishment of the American Expeditionary Forces University at Beaune, France, in February, 1919. Early in the American participation in the Great War Dr. Anson Phelps Stokes of Yale University presented a memorandum to the War Department outlining a plan of education to be carried out in the American forces during the period of demobilization. The plan contemplated the placement of American soldiers and officers in universities in France and Great Britain, together with the establishment of educational centers under Army control for less advanced education. The practicability of the suggestion appealed to the War Department, which already had the experience of the Army Overseas Educational Commission of the Y. M. C. A. and of the Committee on Education and Special Training to guide it, and shortly after the signing of the armistice it was determined to put the main features of the plan into operation. Brig.-Gen. Robert I. Rees, formerly chairman of the Committee on Education and Special Training, was sent to France to take charge of the educational work. Coöperative arrangements were made with the Army Overseas Educational Commission of the Y. M. C. A. whereby the Commission furnished advice and supplied various groups of experts.

In General Orders No. 30, issued on Feb. 13, 1919, the plan for the A. E. F. University is outlined. Pointing out that post schools for elementary and secondary instruction had already been provided, the Orders stated that there were next to be established, for more advanced education, in each Army corps and division, centers known as "division educational centers." These centers were to provide "such vocational training as the material and equipment within the division or sector makes possible." These centers were also to furnish instruction in more advanced subjects of general education, such as algebra, trigonometry, mechanical drawing, economics, American and English literature, advanced French, Italian, Spanish, German, and history. Supplementing and expanding these opportunities at the division centers, officers and soldiers were authorized to attend educational institutions "of the nations associated with the United States in this war." Soldiers received commutation of subsistence at the rate of \$2 per day and lodging not in excess of \$1 per day. The Orders also provided for the main "A. E. F. Educational Center" at Beaune, to provide college and technical training beyond that of division centers.

Administration of the A. E. F. University at Beaune was entrusted jointly to the military and academic services. Col. I. L. Reeves was commanding officer in charge. Prof. John Erskine of Columbia University, chairman of the Army Educational Commission of the Y. M. C. A., was educational director of the University and served as chairman of the University council. The University included in its organization colleges of agriculture, fine and applied arts, business, correspondence, education, engineering, journalism, law, letters, medical sciences, music, and science, besides a farm school and the post and division schools. Between March 1 and June 1 there were 12,000 American soldiers studying at Beaune, with approximately 700 instructors. French universities took care of 8,000 American students under the plan announced in General Orders No. 30, and the universities of Great Britain re-

ceived 2,027. The unusual circumstances under which the work was done, the frankly experimental attitude of those in charge, and the enthusiastic interest of the soldiers in the opportunities offered have caused many observers to regard the A. E. F. University as something more than an international episode or even an interesting educational experiment—as, rather, a significant forecast of educational development throughout the world.

Education in the League of Nations.—It was out of the A. E. F. University at Beaune that there came the first definite, authoritative suggestion for a permanent Bureau of Education in any league of nations that might be set up. A memorandum on "education as an item in the league of nations," signed by Prof. John Erskine, Supt. Frank E. Spaulding, and President Kenyon L. Butterfield, constituting the Army Educational Commission, pointed out that "education has become the chief concern of statesmen, and the new world, which hopes for intelligent partnership among free nations of free men, must therefore demand an adequate programme of education," since only by education can world democracy be solved and a society of nations maintained. Education that is expert, democratic, and truly international will be the demand of the world, in the opinion of the Commission. The memorandum ends:

The leadership which the new world will ask for is a leadership expert and effective, in sympathy with democratic ideals of work and with democratic ways of living. The training of this type of leadership becomes therefore one of the important tasks for which the nations must provide. This training must be as international as are now all aspects of trade, of industry, of agriculture, of politics, of literature, of history. The leaders we ask for must have the world outlook. Provision should therefore be made for the cooperation of universities, colleges, schools, and all other educational agencies of the world; for a wider extension and improvement in methods of teaching modern languages; for the more adequate teaching of modern history and of geography; for the encouragement of educational news service. To these ends there should be established both a permanent Bureau of Education in the League of Nations and means by which frequent and largely attended educational conferences may be held, in which the widest possible applications of the principle of democratic education may be discussed by all the peoples.

GENERAL EDUCATIONAL PROGRESS

Rural Life and Education.—The main lines of rural-school improvement during the year, as summed up by the Rural School Division of the U. S. Bureau of Education, were as follows:

(1) A general movement toward increased support, state, county, and local, through larger appropriations and higher taxation rates.

(2) Better administrative methods for rural schools, characterized chiefly by centralization of authority.

(3) Gradual increase of educational qualifications demanded from candidates for teaching certificates, and higher salaries scaled according to qualifications.

(4) Efforts toward the equalization of educational opportunities, through increased state appropriations and state aid; provision for increasing the number of rural high schools; various methods of encouraging consolidation of small schools; better measures for enforcing compulsory-attendance laws in rural communities.

Conferences on rural education and rural life held during the year included three national conferences under the auspices of the Bureau of Education, at Daytona, Fla., in February; at Oklahoma City, May 1-3; and at Sioux Falls, S. D., in October. The Committee on Country Life, organized in 1917, which is giving special attention to rural education, met at Baltimore in January, 1919, and again at Chicago in December.

Educational Surveys.—Educational surveys made during the year included the following state surveys: Alabama, made by the Bureau of Education; Virginia, by a special commission the director of which was Prof. A. J. Inglis of Harvard University; and Delaware, made by the General Education Board. The Bureau of Education also surveyed the schools of Memphis, Tenn., and Lexington, Ky., and began a survey of the schools of Washington, D. C.

A Kindergarten Revival.—The kindergarten in the United States is undergoing something akin to a revival. Organization of the kindergarteners through state associations, stimulation of interest in the movement through Congressional appropriation, and realization of the importance of the kindergarten in the Americanization movement have tended to draw the attention of the public

more generally to the possibilities of extending the kindergarten influence to all communities, rural as well as urban.

Army Mental Tests.—A plan for using the Army mental tests in schools has been formulated by a committee of the National Research Council. These tests have been used for some time on individual children, but not on larger groups. It is now planned to employ them in handling large groups of children, even whole classrooms at one time. R. M. Yerkes is chairman of the committee at work on the problem. The General Education Board is furnishing financial support. In its preliminary work the committee selected some 20 tests for careful trial. This trial was made on 5,000 children. The committee then selected from the tests two series which seemed to be the most satisfactory, and these will now be tried on several thousand more children in order that they may be further perfected before they are finally offered to the teachers of the country for general use.

Statistics of Education.—Except for the school attendance and illiteracy data collected in the decennial census and certain information relating to Federally-aided vocational schools gathered by the Federal Board for Vocational Education, the nation is dependent upon the U. S. Bureau of Education for educational statistics. The latest published general statistics of this Bureau are for the year 1915, appearing in the annual *Report of the Commissioner of Education* for 1917. The Bureau has announced that its policy hereafter will be to gather and publish statistics biennially, instead of annually, in the even-numbered years. Lack of uniformity in methods of collecting statistics by the various states made necessary a new arrangement for joint collection of statistics by state and nation. Such an arrangement was perfected toward the close of 1919, but necessarily some time must elapse before the results can be available in the form of summary statistics for the whole United States.

Statistics on the old plan were col-

XXX. EDUCATION AND EDUCATIONAL INSTITUTIONS

ENROLLMENT IN EDUCATIONAL INSTITUTIONS, 1918

(Exclusive of territories and insular possessions.)

	Male	Female	Total
Kindergarten and elementary:			
Public	9,497,512	9,422,183	18,919,695
Private and parochial ..	727,956	729,088	1,457,044
Secondary:			
Public	851,954	1,081,867	1,933,821
Private	173,359	284,722	458,081
Colleges, universities, and professional schools 1 ..	276,945	138,854	415,799
Normal schools ..	21,287	116,887	138,174
Other institutions	293,734	508,877	802,611
Total	11,842,747	12,282,478	24,125,225

1 1916 figures.

NUMBER OF PUBLIC SCHOOL TEACHERS, 1917-18

	Male	Female	Total
Kindergarten ..	3,537	3,537	7,074
Elementary ..	75,448	486,736	562,184
Secondary	29,731	55,259	84,990
Total	105,179	545,532	650,711

PERCENTAGE OF MALE TEACHERS (INCLUDING SUPERINTENDENTS AND PRINCIPALS), 1870-1918.

	Per cent.
1870-71	41.0
1879-80	42.8
1889-90	34.5
1899-1900	29.9
1909-10	21.1
1915-16	19.8
1917-18	16.1

AVERAGE ANNUAL SALARIES, 1917-18

Elementary schools	\$ 606
Secondary schools	1,031
All schools	635

AVERAGE LENGTH OF SCHOOL TERM, 1871-1918

	Days
1870-1	132
1879-80	130
1889-90	135
1899-1900	144
1909-10	158
1915-16	160
1917-18	160.7

Average number of days attended by each pupil enrolled, 1918, 119.8.

Average days attended by each child 5-18 years, 1918, 90.2.

lected by the Bureau of Education for 1918, and were partly in press when the calendar year 1919 came to an end, but it will be half way through 1920 before the figures are generally accessible in the *Biennial Survey of Education*. The accompanying figures are compiled from manuscript tables furnished by the Bureau.

Bibliography.—Educational literature of the year includes Professor Cubberly's new book on *Public Education in the United States* (Houghton, Mifflin), a "study and interpretation of American educational history"; Dean Samuel Chester Parker's *General Methods of Teaching in Elementary Schools*, the outcome of 15 years' experience in teacher training; and Professor Starch's *Educational Psychology* (Macmillan). *Projects in the Primary Grades* (Lippincott) is the title of Alice M. Krackowizer's significant book on adjustment of early education to children's experiences.

University war work and reconstruction policies are reviewed in *The Colleges in War Time and After* (Appleton), by Park R. Kolbe. *New Schools for Old*, is Evelyn Dewey's fanciful title for a description of a significant rural-school experiment. The whole field of reëducation, as applied both to war cripples and industrial cripples, is reviewed in Garrard Harris's *The Redemption of the Disabled* (Appleton).

Studies of the educational systems of six modern nations, the United States, Germany, England, France, Canada and Denmark, are conveniently brought together in *Comparative Education* (Dutton), edited by Peter Sandiford. Modern methods in industrial training are treated in William H. Dooley's *Principles and Methods of Industrial Education for Use in Teacher-Training Classes* (Houghton, Mifflin), and given their war setting in C. R. Dooley's "Final Report of the National Army Training Detachments." One of the most attractive official reports that has come out of the war.

For those who like the effort to make education readable through fiction form there is Herbert Quick's *The Fairview Idea*, which has more of rural life and education but less of story than his deservedly popular *Brown Mouse*; or H. G. Wells's *Joan and Peter*, not to mention his still more recent *The Undying Fire*, both far more important contributions to education than most of the works that go in that category.

LIBRARIES

J. I. WYER, JR.

Libraries after the War.—Despite the removal of four million service men from the reach of public libraries, their use suffered no decline during the war save when epidemic and fuel shortage forced them to close, and in certain localities there was exhibited a marked increase over pre-war figures. Either our four million soldiers made little or no use of libraries when at home or those who stayed behind developed an added eagerness to read which balanced the scale. That the soldiers were avid readers, even under the exactions of military life, has been abundantly shown by the use made of camp libraries, the striking success of which seems to put pre-war public library service under conviction of having failed in attractiveness and appeal to men. There is every sign that American public libraries are keenly appreciating this implication and are preparing to make every effort to maintain a civilian library service that shall equal in effectiveness and attraction the facilities for reading and study which men found in camp, field, hospital, and ship.

Soaring living costs, unbalanced by corresponding increments in salary scales, and the continuance of tempting opportunities in commercial work sorely depleted the ranks of library workers and created not a little unrest among those who stayed. But despite unprecedented difficulties in maintaining normal service, the profession generally maintained its traditionally optimistic spirit, though the loss of hundreds of trained workers must have greatly affected the quality and amount of work done and to be done. Many libraries have commenced or planned new buildings and enlarged programmes of service, and more significant perhaps than anything else is the enlarged programme of the American Library Association mentioned below.

War Service of the American Library Association.—During the period of demobilization the Library War Service continued its efficient service to soldiers, sailors, and marines on both sides of the Atlantic and in the remotest corners of the globe, where

ever men in the service of our country were stationed. In addition to the normal library service, large purchases of educational and vocational books were supplied to assist in the great educational programme planned for our men in France and Germany (see *Education, supra*). At the same time regular service was maintained for nearly 4000 camps, posts, stations, hospitals, and ships in the United States and its dependencies. On Nov. 1 the War and Navy Departments assumed responsibility for the continuance and permanent maintenance of library service for all enlisted men within the continental limits of the United States, taking over the A. L. A. equipment, books, and personnel operating at that date.

The A. L. A. will continue to serve the men in Europe, Asia, and the colonies, and in such branches of the national service other than the Army and Navy as the Coast Guard, Light House Service, U. S. Shipping Board, and other industrial plants under Federal control. As far as practicable library facilities will be put within reach of all discharged service men. Books in embossed type will be printed for the use of blinded soldiers. It was further arranged that books in excess of the needs of the national service shall be distributed to library commissions in those parts of the country where there is the greatest dearth of public library facilities. Of the million volumes that accumulated overseas, a part will go to form a permanent American library in Paris, and thousands of volumes have been given to selected foreign institutions as memorials of the A. E. F.

Enlarged Programme of the A. L. A.—The unimagined success and amplitude of the Library War Service could not fail to create in the leaders of the profession an ardent faith in the possibilities of greatly expanded library service in the near future, a faith which was accompanied, moreover, by a tremendous zeal to "carry on." This forward movement took definite shape in the formulation of an enlarged programme, based on the "responsibility to encourage and promote

the development of library service for every man, woman, and child in America.³⁷ The programme embraced such important undertakings as the standardization and certification of librarians by a National Examining Board, a nation-wide survey of libraries and library needs, and a vast campaign of information and education in library matters, including active coöperation with all educational institutions and associations. Some realization of the importance and scope of this programme may be obtained from the fact that it is planned to spend \$570,000 in 1920 and to raise a fund of \$2,000,000 for the further prosecution of the work.

Publicity.—War work has given librarians a new understanding of the immense power of publicity. As never before they realize that not only must they provide library facilities, but must also make the hitherto unreached masses familiar with their resources by intensive and organized propaganda of publicity and education. The academic aloofness of earlier librarianship is in some danger of being replaced by the newest fads in smart salesmanship and window dressing, but individual vagaries will be condoned if it all tends to promote the great end of bringing the people to the books.

Salaries and Staff Organization.—It is notorious that library workers have always been absurdly underpaid in proportion to the character of the service they were expected to render. Consequently, in their case the salary situation resulting from the post-war economic crisis was more than usually desperate. Defection from the lower ranks reached alarming proportions. The Brooklyn Public Library at one time advertised 61 vacancies. Other libraries have had equally embarrassing experiences. In some places an 80 to 100 per cent. increase in living expense has been partly met by a 20 to 25 per cent. increment of salary. In other places, notably New York City, the situation was complicated by disastrous cuts in general appropriations. In New York the dissatisfaction of the lower grades of workers expressed itself in the formation of a local labor union. It is interesting to note that in Los Angeles the Public Library

staff were able to secure increased pay only by means of a popular referendum. Nothing less than a vigorous campaign of popular education in the matter of library workers' deserts can prevent a serious disruption of public library service throughout the country. Not only do the low salaries drive many out of libraries, but they operate to discourage the coming into the work of those with promising personality and preparation.

A. L. A. Conference.—The attendance at the Asbury Park conference of the A. L. A., close upon 1,200, was double the number of the preceding year. Library War Service continued to fill the major part of the programme but the inspiring feature of the meeting was the broadened horizon of library endeavor, discerned in President Bishop's address, "At the Cross Roads," and officially recognized in the appointment of the committee which later issued the enlarged programme mentioned above. The publication during the meeting of a well edited daily newspaper, called "The Use of Print," and its free distribution not only to those in attendance but to all members of the Association, were indicative of its awakened interest in publicity. The Association elected the following officers: president, Chalmers Hadley, librarian of the Denver Public Library; vice-presidents, George H. Locke, librarian of the Toronto Public Library, and Cornelia Marvin, librarian of the Oregon State Library; three-year members of the Executive Board, Carl H. Milam, librarian of the Birmingham Public Library and Acting General-Director of the Library War Service, and Edith Tobitt, librarian of the Omaha Public Library.

Buildings.—Large appropriations were made for new buildings in Detroit and Wilmington and for an important addition at Providence. At St. Paul a bond issue was authorized for a new building. The rapidly growing importance of agricultural education was reflected in the commencement of first-class library buildings for the State Agricultural Schools of Iowa and Michigan. The most notable item is the completion of the new library of the University of Michigan. This, for the most part built during

the war, in its careful regard for library utility, avoidance of architectural extravagance and idiosyncrasies, and wise provision for future expansion, sets a new mark in American library architecture. A \$180,000 building at the George Peabody College for Teachers, Nashville, Tenn., was occupied in May.

Gifts.—The customary stream of private benevolence was checked by conditions arising out of the war, but a number of buildings were given either by bequest or donation. The Carnegie Corporation made no new grants pending the return of peace, but it financed a number that had already been arranged for. The latest figures available are those of 1918, totalling \$89,000 for the United States and \$9,000 for Canada.

Deaths and Appointments.—The profession lost by death: on June 10, Raymond C. Davis, librarian of the University of Michigan, 1877-1905, and librarian-emeritus since the latter date; and on July 30, Charles H. Gould, for nearly 30 years librarian of McGill University and in 1908-9 president of the American Library Association.

Appointments of general interest are those of E. H. Redstone as librarian of the Massachusetts State Library; Asa Don Dickinson to be librarian of the University of Pennsylvania; Luther L. Dickerson to the newly created post of Army librarian; and Charles H. Brown to be librarian of the Navy. Adam Strohm, librarian of the Detroit Public Library, was appointed a member of the Michigan State Board of Library Commissioners, one of the rare instances in which librarianship has been recognized as a qualification for such service. The growing importance of librarianship in the organization of big business was illustrated by the appointment of Frank K. Walter, since 1908 vice-director of the New York State Library School and president (1919-1920) of the Association of American Library Schools, to organize and direct the Library and Information Department of the General Motors Corporation.

Legislation.—A new Minnesota law creates a Department of Education,

into which has been absorbed, but with no abatement of its work or resources, the Library Commission, which has had separate existence since 1899. Although in a sense local legislation, this is significant as a step toward a wholesome coördination of separate but related state educational and library agencies which have tended to become too numerous during the past 40 years. Better action would have been to unite all library agencies under the State Library, or to put the State Library under the Education Department along with the Library Commission, but as in Minnesota the State Library is a political institution whereas the Library Commission has always been a professional agency, the latter would prefer to be under the more congenial wing of the new Education Department. The former Commission is now a division of the new Department, and its staff has been reappointed without change.

The New Hampshire law of 1917 creating a State Library Commission was given effect and vitality in 1919 by an initial appropriation of \$4,000 for the coming biennium. An act passed by the Pennsylvania legislature in May gives the exclusive control and management of the State Library and Museum to the state librarian and director of the Museum, who is to be appointed by the governor, and who will have full power in the employment and dismissal of the force and receive and disburse all moneys. The Board of Trustees of the State Library is abolished, and the building hereafter comes under the charge and control of the Commissioners of Public Grounds and Buildings. There will be the following divisions: general library, law library, public records, library extension, and museum. The Library Extension Division is to take over the work of the Free Library Commission, which is abolished by the new law.

BIBLIOGRAPHY

- American Library Association, War Service Committee.—Annual Report, 1-2, 1918-1919.
 KOCH, T. W.—*War Libraries and Allied Studies*. (Houghton Mifflin.)
 PEDDIE, R. A.—*National Bibliographies*.
 SAYERS, W. C. B.—*Introduction to Library Classification*.

XXXI. CHRONOLOGY AND NECROLOGY

AMERICAN CHRONOLOGY

JANUARY

1.—U. S. transport *Northern Pacific* with nearly 3,000 troops on board grounds off Fire Island.

2.—President Wilson cables appeal to Congress for appropriation of \$100,000,000 to feed destitute in liberated territories of Europe.

Michigan ratifies Federal prohibition amendment.

3.—President Wilson arrives in Rome; addresses Italian Parliament, urging world peace on the basis of friendship.

6.—Theodore Roosevelt dies at Oyster Bay, N. Y.

7.—Ohio, Colorado, and Oklahoma ratify Federal prohibition amendment.

President Wilson returns to Paris.

8.—Idaho, Tennessee, and Maine ratify Federal prohibition amendment.

Victor Berger, Representative-elect from Wisconsin, and four other leaders of the Socialist Party convicted at Chicago of sedition under the Espionage Act.

Theodore Roosevelt buried at Oyster Bay, N. Y.

9.—House passes War Contracts bill validating verbal contracts made prior to armistice.

Thomas W. Gregory, Attorney-General of the United States, resigns as of March 4.

West Virginia ratifies Federal prohibition amendment.

Strike of marine workers on ferries and lighters begins at New York.

11.—Walker D. Hines appointed Director-General of Railroads.

Food Administration announces lifting of license restrictions on many foodstuffs.

12.—Strike of marine workers at New York ended at request of President Wilson pending investigation by War Labor Board.

Twenty-one killed in collision on New York Central near Batavia, New York.

13.—House passes bill appropriating \$100,000,000 for relief in Europe, and \$26,900,000 Rivers and Harbors Appropriation bill.

California and Washington ratify Federal prohibition amendment; U. S. Supreme Court upholds Reed amendment prohibiting interstate transportation of liquor into dry territory even when permitted by state statutory concessions.

14.—Arkansas, Illinois, Indiana, Kansas, North Carolina and Alabama ratify Federal prohibition amendment.

Resignation of Vance C. McCormick as Chairman of the Democratic National Committee announced in Washington.

15.—Iowa, Oregon, New Hampshire, Colorado, and Utah ratify Federal prohibition amendment.

National Labor Congress to promote new trial for Thomas J. Mooney opens at Chicago.

16.—Senate adopts resolution to dismiss charges of disloyalty brought against Senator La Follette of Wisconsin.

Secretary Baker announces exoneration of Col. Edward A. Deeds by War Department board of inquiry of charges made in Charles E. Hughes' report on aircraft production.

Secretary Baker orders release and discharge from Army of 131 conscientious objectors imprisoned at Fort Leavenworth.

Nebraska, Missouri, and Wyoming ratify Federal prohibition amendment making amendment effective with ratification by 38 states.

Forty-six members of I. W. W. convicted at Los Angeles of conspiracy in connection with dynamiting of home of Governor Wm. D. Stephens on Dec. 17, 1917.

17.—Fuel Administration abolishes regulations fixing prices for bituminous coal and coke and establishing zone system as of Feb. 1.

Minnesota and Wisconsin ratify Federal prohibition amendment.

20.—Interstate Commerce Commission in rate decision asserts its supremacy over the Director-General of Railroads.

21.—Toll and long-distance telephone rates prescribed by Post Office Department effective except in 10 states where temporary restraining orders are granted.

Strike of 25,000 shipyard workers begins in Seattle and Tacoma, Wash.

24.—Senate passes bill appropriating \$100,000,000 for food relief in Europe.

Railroad Administration presents supplementary estimate for appropriation of \$750,000,000 for 1919.

28.—House Immigration Committee reports favorably bill to restrict general immigration for four years.

House Committee on Post Offices and Post Roads votes to report resolution for return of telegraph and telephone systems to their owners on Dec. 31, 1919.

29.—State Department proclaims Eighteenth (prohibition) Amendment a part of Federal Constitution, effective Jan. 16, 1920; New York and Vermont ratify amendment.

House passes Emergency Deficiency bill repealing appropriations and authorizations for the Army and Navy amounting to \$15,000,000,000.

Resignation of Carl Vrooman, Assistant Secretary of Agriculture, announced.

31.—House Naval Affairs Committee reports Naval Appropriation bill providing for a three-year building programme to cost \$800,000,000.

FEBRUARY

1.—Conferees on Revenue bill reach agreement. Food Administration suspends restrictions on profits on foodstuffs except cottonseed oil and eggs.

3.—Strike of textile workers begins at Lawrence, Mass.

4.—Senate orders inquiry into Bolshevik and radical propaganda by Committee on the Judiciary.

Connecticut Senate rejects Federal prohibition amendment.

5.—War Trade Board announces increase in imports permitted to Scandinavian countries.

6.—Conference report on Revenue bill submitted to House.

House Foreign Affairs Committee reports resolution recommending to Peace Conference favorable consideration of claims of Ireland to self-determination.

General strike of labor unionists in sympathy with striking shipyard workers begins in Seattle; Federal troops guard city.

7.—Glenn E. Plumb submits to Senate Interstate Commerce Committee plan for Government ownership of railroads approved by railway unions. Ole Hanson, Mayor of Seattle, notifies strikers that unless sympathetic strike is ended by Feb. 8 the city will be placed under control of the Federal Government.

8.—House adopts conference report on Revenue bill estimated to raise \$6,077,200,000.

Senate passes Post Office Appropriation bill authorizing \$200,000,000 expenditure for roads during next three years.

Senate rejects Borah amendment to Espionage Act repealing authority of Postmaster-General to exercise censorship over mail matter.

9.—Senate and House unite in memorial service for Theodore Roosevelt.

Suffragists of National Woman's Party burn President Wilson in effigy before the White House.

XXXI. CHRONOLOGY AND NECROLOGY

10.—Senate passes Emergency Deficiency bill cancelling \$15,000,000,000 in appropriations and authorizations.

Senate rejects woman-suffrage amendment to Federal Constitution.

Secretary Glass appeals to Congress for authority to issue \$10,000,000,000 in bonds and a like amount in notes.

Labor leaders in Seattle order end of abortive general strike.

11.—House passes Naval Appropriation bill with three-year construction programme.

Connecticut House approves ratification of Federal prohibition amendment.

Senate Judiciary Committee begins investigation of Bolshevism.

12.—Connecticut Senate again rejects Federal prohibition amendment.

Twenty-nine men arrested at I. W. W. headquarters in Chicago.

13.—Senate adopts conference report on Revenue bill.

Major-Gen. Enoch Crowder nominated and confirmed as Judge-Advocate-General of the Army for a further term of four years.

Brig.-Gen. Samuel T. Ansell, acting Judge-Advocate-General, in testimony before Senate Military Affairs Committee, condemns existing system of Army courts-martial.

14.—President Wilson on eve of sailing from France cables Foreign Relations Committees of Congress to suspend debate on League of Nations until his return.

Senate declines by one vote to consider Johnson resolution demanding withdrawal of American troops from Russia.

Resignation of Wm. G. Sharp, U. S. Ambassador to France, announced as accepted on Dec. 21, 1918, effective where successor qualifies.

15.—President Wilson sails from Brest for the United States.

17.—Secretary Baker announces American Allied troops will be withdrawn from Russia when spring weather conditions permit.

16.—Senate passes Rivers and Harbors Appropriation bill.

House passes \$1,070,000,000 Army Appropriation bill.

19.—Senator Poindexter attacks League of Nations Covenant in the Senate.

20.—Victor L. Berger and four associates sentenced to 20 years' imprisonment for conspiracy to obstruct war preparations; all released on bail pending appeal.

21.—House passes bill appropriating \$750,000,000 for Revolving Fund of Railroad Administration.

Senator Borah attacks League of Nations Covenant in Senate.

22.—House passes bill authorizing purchase of wheat of 1918 and 1919 crops by the Government at guaranteed price.

Senator Reed (Dem.), denounces League of Nations in Senate as abrogation of Monroe Doctrine.

French bark *Helene* sunk in collision with Norwegian steamer *Gunsford* off Delaware Capes with loss of 16 lives.

Nine killed and many injured in collision on Baltimore & Ohio in Pittsburgh.

23.—Secretary Redfield announces creation of Industrial Board to continue price fixing on voluntary basis.

Fourteen Spanish radicals arrested in New York in connection with alleged plot to assassinate President Wilson.

24.—President Wilson lands at Boston and in speech challenges his critics to test sentiment of the nation.

Senate passes bill authorizing field or territorial commanding officers of Army to review sentences of courts-martial.

Victory Loan bill reported to House.

25.—President signs Revenue bill.

Senate passes bill authorizing resumption of volunteer enlistment in the Army.

Pennsylvania ratifies Federal prohibition amendment.

26.—House passes Victory Loan bill.

President Wilson expounds League of Nations Covenant to members of Senate and House Committees on Foreign Affairs at White House.

Hugh C. Wallace of Tacoma, Wash., nominated as Ambassador to France.

Frederic S. Cummings of Connecticut elected chairman of Democratic National Committee.

27.—House Republicans in caucus nominate Frederick H. Gillet of Massachusetts as speaker of the incoming House but reject revision of seniority rule in appointing committees.

A. Mitchell Palmer, Alien Property Custodian, nominated as Attorney-General, and Norman H. P. good of New York as Minister to Denmark.

28.—Senate passes Wheat Price Guarantee bill carrying appropriation of \$1,000,000,000.

House passes Sundry Civil Appropriation bill, carrying \$850,000,000, and the General Deficiency bill, carrying \$277,711,000.

Senator Lodge attacks League of Nations Covenant in Senate.

Director-General of Railroads announces retention of Government control until Congress has had further opportunity for legislation.

Federal Reserve Board, following example of Great Britain and France, prohibits foreign-exchange transactions with Russia.

Hugh C. Wallace confirmed as Ambassador to France.

Viscount Reading, British Ambassador, arrives at New York from England.

Canadian steamer *Lord Dufferin* sunk in collision in New York Harbor.

MARCH

1.—House adopts resolution to repeal luxury-tax clause of Revenue bill.

House unseats Zebulon Weaver, Democrat, of North Carolina in favor of James J. Britt, Republican.

Senate and House Woman Suffrage Committees order report of compromise resolution for submission of amendment to Federal Constitution.

Senator Knox attacks League of Nations Covenant in Senate as productive of future wars.

Porto Rican legislature adopts resolution favoring statehood or else independence.

2.—Senate passes Victory Loan bill.

President creates American Relief Administration and appoints Herbert C. Hoover Director-General.

3.—President signs Victory Loan Act, Rivers and Harbors Appropriation Act and Act validating informal war contracts.

Francis P. Garvan of New York appointed Alien Property custodian.

Conference of governors and mayors on reconstruction and labor conditions opened by President Wilson in White House.

4.—President Wilson, speaking in New York with Wm. H. Taft, declares League of Nations Covenant an essential part of treaty of peace.

Senator Lodge offers in Senate resolution, endorsed by 37 Republican Senators-elect, to reject League of Nations Covenant as now drafted and urging Peace Conference to expedite signing of Treaty of Peace.

House adopts resolution urging Peace Conference to favor self-determination for Ireland.

Sixty-fifth Congress ends; filibuster in Senate defeats General Deficiency bill; Army, Naval, Agricultural, Sundry Civil, Indian, and District of Columbia Appropriation bills unpassed; President issues statement condemning Senate group responsible for failure of appropriation for Railroad Administration; President signs Wheat Guarantee and Diplomatic and Consular Appropriation bills.

Philippine Legislature in joint session perpetuates Independence Mission and instructs it to continue efforts for independence.

Strike of marine workers, rejecting award of War Labor Board, begins in New York harbor.

5.—President Wilson sails from New York for France.

John H. Wilson, Democrat, elected to Congress from 22d District of Pennsylvania on platform endorsing League of Nations.

A. Mitchell Palmer sworn in as Attorney-General, succeeding Thomas W. Gregory, resigned.

President Wilson commutes sentences of 52 persons convicted under Espionage Act.

7.—Will H. Hays, Republican National Chairman, declares Republican Party stands for nationalism rather than indefinite internationalism.

Striking marine workers at New York accept concessions offered by Railroad Administration applying to railroad craft.

9.—Strike of shipyard workers on Pacific Coast ended.

10.—U. S. Supreme Court sustains convictions of Eugene V. Debs and Jacob Frohwerk under Espionage Act.

XXXI. CHRONOLOGY AND NECROLOGY

11.—Frank W. Mondell of Wyoming chosen floor leader in House of 66th Congress by Republican Committee on Committees.

12.—Martin A. Morrison of Indiana and George R. Hales of Vermont appointed members of U. S. Civil Service Commission.

War and Navy Departments agree to terms of Railroad Administration for settlement of strike of their marine workers at New York.

14.—American naval transport *Yselhaven* sunk by mine in North Sea with loss of nine lives.

15.—Clyde B. Atchison elected chairman of Interstate Commerce Commission.

17.—West Virginia House of Delegates adopts resolution opposing League of Nations.

18.—New Jersey Assembly rejects Federal prohibition amendment.

Senator Reed speaks in opposition to League of Nations before Missouri Legislature.

20.—Agreement reached between Department of Commerce Industrial Board and steel manufacturers for reduction in steel prices.

22.—Postmaster-General Burleson removes Clarence H. Mackay, president, and other officers of Postal Telegraph & Cable Co. from operation of company on ground of obstruction of Government control.

American cavalry pursue Mexican bandits over border, killing five near Ruidosa.

23.—Jury in trial of Jeremiah O'Leary at New York for violation of Espionage Act disagrees.

24.—Wm. H. Taft suggests amendments to League of Nations Covenant to recognize principle of Monroe Doctrine.

25.—Twenty-seventh Division, A. E. F., marches in New York.

26.—Charles E. Hughes, speaking in New York, proposes seven amendments to League of Nations Covenant.

29.—Postmaster-General Burleson announces 20 per cent. increase in telegraph rates effective April 1.

Elihu Root in letter to Will H. Hays, Republican National Chairman, proposes six amendments to draft of League of Nations Covenant.

30.—Standard time advanced one hour throughout the United States.

31.—War Finance Corporation announces issue of \$200,000,000 of five per cent. bonds to promote foreign trade.

Forty killed by collapse of a scaffold at ship launching at Bristol, Pa.

APRIL

1.—War Trade Board announces resumption of trade with Poland and Esthonia.

Food Administration releases meat-packing industry from control under Federal license.

Wm. Hale Thompson, Republican, reelected Mayor of Chicago; local prohibition defeated in referendum.

2.—Walker D. Hines, Director-General of Railroads, rejects steel prices fixed by Department of Commerce Industrial Board.

War Trade Board announces partial relaxation of blockade of German Austria.

4.—Philippine delegation presents to Secretary Baker memorial of Legislature asking complete independence; letter of President Wilson assures them of his sympathy and support.

7.—Thomas Nelson Page, Ambassador to Italy, reported resigned.

State election for minor offices in Michigan results in return of Republican candidates and adoption of prohibition amendment.

8.—Scores killed by tornado in Texas, Oklahoma, and Arkansas.

10.—Railroad Administration grants wage increase to trainmen estimated at \$65,000,000 yearly.

11.—J. L. Ackerson appointed Director-General of the Emergency Fleet Corporation, succeeding Charles Piez.

12.—War Department announces 686,000 troops returned from overseas and 1,700,000 discharged from Army since armistice.

13.—Secretary Glasgow announces terms of Victory Loan.

Eugene V. Debs begins 10-year term in West Virginia Penitentiary at Moundsville.

14.—Railroad Administration announces wage increases averaging \$15 a month to 69,000 employees of American Railway Express Co.

15.—Hugh Gibson reported appointed U. S. Minister to Poland.

Strike of telephone operators of New England Telephone & Telegraph Co. begins.

18.—Julius H. Barnes, President of the U. S. Grain Corporation, appointed U. S. Wheat Director.

Cable censorship abolished on communications to Central and South America and the Orient.

19.—Fritz G. Lanham, Democrat, elected to Congress unopposed from 12th Texas District.

Strike of marine workers at New York ended by grant of 10-hour day.

Capt. E. F. White makes first non-stop flight from Chicago to New York in 6 hr. 50 min.

20.—Strike of telephone operators in New England ends with concession of wage increase.

21.—Victory Loan campaign opens.

22.—United States recognizes British protectorate over Egypt.

23.—Rhode Island legislature passes bill declaring non-intoxicating beverages containing four per cent. of alcohol.

26.—U. S. District Court at Chicago enjoins Post Office Department from enforcing new telegraph rates within Illinois.

U. S. naval seaplane F-5 completes record duration flight of 20 hr. 10 min., flying 1,250 miles.

27.—War Trade Board abolishes blacklists of enemy firms with which communication was prohibited under Trading-with-the-Enemy Act.

28.—Postmaster-General Burleson announces recommendation to President that cable and wire systems be returned to their owners as soon as possible.

Bomb delivered in mail to Mayor Ole Hanson of Seattle fails to explode.

U. S. naval tug *Gypsum Queen* sunk off Brest with loss of 16.

29.—Postmaster-General Burleson orders return of marine cables to their owners on May 2, and issues statement reaffirming belief in Government ownership of telephone and telegraph systems.

Bomb delivered in mail to Senator Hardwick of Georgia at Atlanta injures wife and maid.

MAY

1.—Socialist May Day riots occur in Cleveland and Boston.

2.—U. S. District Court at Greensboro, N. C., declares unconstitutional Federal tax on products of child labor.

3.—Cables returned to private ownership by Post Office Department.

U. S. Government purchases from Alien Property Custodian German-owned piers at Hoboken, N. J.

6.—Henry M. Robinson of California appointed a member of the Shipping Board.

7.—President Wilson issues proclamation summing Sixty-sixth Congress in special session on May 19.

8.—U. S. naval seaplanes NC-1 and NC-3 fly from Rockaway, Long Island, to Halifax, N. S.; NC-4 forced to land for repairs at Chatham, Mass.

9.—Department of Commerce Industrial Board abolished after failure of price-fixing projects.

10.—Victory Loan campaign ends with total subscriptions of \$5,249,998,300 in nearly 12,000,000 individual subscriptions.

Attorney-General holds Department of Commerce Industrial Board unauthorized by law.

Seaplanes NC-1 and NC-3 fly from Halifax to Trepassay, Newfoundland.

12.—Secretary Baker announces full settlement by the American Liquidation Commission of claims of the United States against Great Britain arising out of military operations for \$35,000,000.

14.—Republican Senators in conference in Washington choose Senator Cummins of Iowa as President *pro tempore* of the Senate.

Strike of 45,000 garment workers begins in New York.

15.—Navy dirigible C-5 arrives at St. John's, Newfoundland, after non-stop flight from Montauk Point in 25 hr., 40 min.

16.—Navy seaplanes NC-1, NC-3, and NC-4 leave Trepassay, Nfld., in flight to the Azores.

17.—Navy seaplane NC-4 commanded by Lieut.-Comdr. A. C. Read, reaches Horta, Fayal, after flight of 15 hr. 18 min.; NC-1 lost at sea 80 miles from Azores but crew rescued; NC-3 loses course in fog and is forced to land.

18.—Henry D. Lindsay, Director of Bureau of War-Risk Insurance, resigns on demand of Secretary Glass.

19.—The Sixty-sixth Congress meets in first, extraordinary, session; Albert B. Cummins of

XXXI. CHRONOLOGY AND NECROLOGY

Iowa elected President *pro tempore* of the Senate and Frederick H. Gillett of Massachusetts Speaker of the House.

R. A. Cholmeley-Jones appointed Director of Bureau of War-Risk Insurance.

Naval seaplane NC-3 reaches Ponta Delgada, Azores, after riding out a gale and navigating 200 miles over high seas.

20.—President Wilson's message, cabled from Paris, read in both houses of Congress.

American steamer *Lake Placid* sunk by mine off Gothenburg, Sweden.

21.—House passes woman-suffrage amendment to Federal Constitution.

Strike of textile workers at Lawrence, Mass., ended by vote of strikers.

22.—House passes deficiency bill carrying appropriation of \$42,615,000 for payment of overdue allotments to dependents of soldiers and sailors.

Twenty killed and scores injured by explosion in Douglas Starch Works at Cedar Rapids, Iowa.

23.—Senate passes deficiency bill carrying appropriation for Bureau of War-Risk Insurance.

U. S. District Court at New York temporarily enjoins Federal officers from interfering with manufacture of 2.75 per cent. beer.

24.—Railroad Administration submits to Congress estimate of \$1,200,000,000 deficit in operation to end of 1919.

Special election on constitutional amendments in Texas results in adoption of state-wide prohibition and defeat of woman suffrage.

Washington Supreme Court holds legislature's ratification of Federal prohibition amendment subject to referendum.

26.—Senator Reed, Democrat, denounces "colored" League of Nations in Senate.

27.—Secretary Daniels in testimony before House Naval Affairs Committee recommends abandonment of three-year naval building programme.

State-wide prohibition effective in Ohio.

Seaplane NC-4 completes first flight across Atlantic with flight from Ponta Delgada to Lisbon.

28.—Senate ratifies Republican caucus committee assignments by party vote.

30.—NC-4 flies from Lisbon to Ferrol, Spain.

31.—NC-4 flies from Ferrol to Plymouth, completing New York-Plymouth flight.

JUNE

2.—Senator Johnson attacks League of Nations in Senate as a war trust.

U. S. Supreme Court affirms complete control by Federal Government over railroad, telegraph, and telephone rates under war powers conferred by Congress.

Bomb attacks made on judicial and other officials in eight cities, including Attorney-General A. Mitchell Palmer in Washington, Judge C. C. Nott in New York, Judge Albert F. Hayden in Boston, and Judge W. H. Thompson in Pittsburgh.

3.—Wm. J. Flynn appointed Chief of Bureau of Investigation of the Department of Justice to suppress anarchist outrages.

4.—Senate passes woman-suffrage amendment to Federal Constitution.

House resolves to investigate expenditures of War Department.

5.—Senator Borah attacks League of Nations Covenant in Senate as a betrayal of American sovereignty.

Postmaster-General Burleson orders return of control of operations, not including rates and wages, to owners of telegraph and telephone systems; Commercial Telegraphers' Union orders strike of telegraph operators of Western Union system in 11 southeastern states.

Ninety coal miners killed by powder fire in Baltimore No. 2 tunnel at Wilkes-Barre, Pa.

6.—Senate adopts resolution calling upon the Secretary of State to furnish the Senate with the full text of Peace Treaty.

Senate adopts resolution requesting American Peace Commission to secure a hearing for Irish representatives before the Peace Conference.

Second Pan-American Commercial Congress opened at Washington.

7.—Paul S. Reinsch resigns as Minister to China.

Commercial Telegraphers' Union orders national strike of telegraph operators on June 11.

9.—Senate orders printed in *Congressional Record* copy of Peace Treaty offered by Senator Borah over protest of Democrats; treaty published by *New York Times* and *Chicago Tribune*.

President suspends restrictions on transactions in foreign exchange and exportation of gold coin and bullion.

American Federation of Labor meets in convention at Atlantic City.

10.—Senator Knox introduces in Senate resolution designed to separate League of Nations Covenant from Peace Treaty.

Senate passes bill repealing Act authorizing Government control of wire systems.

House passes bill appropriating \$750,000,000 for Railroad Administration Revolving Fund.

Wisconsin and Michigan ratify Federal woman-suffrage amendment.

11.—House provides in Army Appropriation bill for army of 300,000 men for fiscal year 1920.

American Federation of Labor adopts resolution protesting against prohibition.

Strike of telegraphers affiliated with Commercial Telegraphers' Union begins with small disorganization of traffic.

12.—Senate Foreign Relations Committee reports Knox resolution to separate League of Nations Covenant from Peace Treaty.

Senate passes bill restoring railroad rate-making power to Interstate Commerce Commission and bill appropriating \$750,000,000 for Revolving Fund of Railroad Administration.

Shipping Board submits to Congress recommendations for development of an American merchant marine.

Offices of Russian Bolshevik Mission to the United States in New York raided by state police.

14.—Ten thousand labor unionists demonstrate in Washington against prohibition of beer and light wines.

15.—American troops cross Mexican border to Juarez to protect El Paso, Tex., in battle between Mexican Government troops and Villistas.

16.—House passes Naval Appropriation bill.

John Skelton Williams nominated as Controller of the Currency; Norman Hapgood as Minister to Denmark; Richard Crane as Minister to Czechoslovakia; Hugh S. Gibson as Minister to Poland; Henry M. Robinson as member of the Shipping Board; and Martin A. Morrison and George R. Wales as members of the U. S. Civil Service Commission.

John W. Correll of Ada, Okla., murdered by bandits or soldiers near Tampico, Mexico.

New York, Ohio, and Kansas ratify Federal woman-suffrage amendment.

17.—American Federation of Labor rejects proposal for referendum on recognition of Russian Soviet Government.

Illinois ratifies Federal woman-suffrage amendment.

Strike of telephone operators and linemen begins in California.

18.—House passes bill to repeal daylight saving; Senate adopts similar measure as amendment to Agricultural Appropriation bill.

Senator McCumber, Republican, defends League of Nations Covenant in Senate.

State Department announces strong representations made to Mexico for protection of American citizens.

19.—House passes bill for restoration of telegraph and telephone systems to their owners.

Mexican Government gives United States assurances of concentration of troops for campaign against Villistas and provision for protection of Americans.

20.—President-elect Epitacio Pessoa of Brazil lands at New York.

21.—Postal censorship abolished.

Senator Borah declares in Senate new party will be formed if Republican Party does not make defeat of League of Nations a party issue.

Ellsworth P. Bertholf resigns as Commandant of the Coast Guard.

New York police raid Rand School of Social Science and headquarters of the Left Wing Socialists and the I. W. W.

22.—Sixty killed by tornado at Fergus Falls, Minn.

23.—Frank L. Polk nominated as Under-Secretary of State; Wm. E. Gonzales as Ambassador to Peru; Doaz W. Long as Minister to Cuba; and Benton C. McMillan as Minister to Guatemala.

24.—Senate adopts amendment to Army Appropriation bill authorizing active strength of 400,000 men for year 1920.

Russian Bolshevik Government protests against alleged arrest of L. C. Martens, its representative in New York.

Pennsylvania ratifies Federal woman-suffrage amendment.

25.—Senate passes Army Appropriation bill carrying \$888,000,000.

Massachusetts ratifies Federal woman-suffrage amendment.

26.—Senate passes Naval Appropriation bill carrying \$644,000,000.

Election in North Dakota results in approval of measures promoted by Non-Partisan League.

27.—Prohibition Enforcement bill reported to House.

28.—Senate passes Sundry Civil Appropriation bill.

Treaty for defense of France by United States in case of unprovoked aggression by Germany signed at Paris.

President Wilson issues address to the American people on signing of Peace Treaty, declaring it a charter for a new order of affairs in the world.

President announces war-time prohibition will not be suspended until demobilization of the Army is completed.

Nine hundred interned Germans deported from Charleston.

29.—President Wilson sails from Brest.

Prohibition effective at midnight throughout the United States under war-time prohibition law.

30.—President Wilson signs the Indian and Railroad Appropriation bills on board ship in mid-Atlantic.

Rear-Adm. Henry B. Wilson succeeds Adm. Henry T. Mayo in command of the Atlantic Fleet.

JULY

1.—Oscar Keller, Independent Republican, elected to Congress from 4th District of Minnesota.

Herbert C. Hoover resigns as chairman of the Food Administration Grain Corporation, and is succeeded by Julius Barnes.

Adm. Hugh Rodman takes command of the newly organized Pacific Fleet.

State Department in reply to Russian Bolshevik Government's protest against "arrest" of L. C. Martens warns against threatened reprisals.

Post Office Department announces inauguration of aerial mail service between New York and Chicago.

Navy dirigible C-8 explodes at Cape May, N. J., injuring 80.

Twelve killed and 36 injured in collision on New York Central near Dunkirk, N. Y.

2.—Iowa ratifies Federal woman-suffrage amendment.

Strike of telegraphers abandoned by Commercial Telegraphers' Union.

3.—State Department instructs American Embassy at Mexico City to make urgent representatives regarding treatment of Americans in Mexico.

War Department orders reduction of Army to peace strength of 233,000 by Sept. 30.

Missouri ratifies Federal woman-suffrage amendment.

4.—Jack Dempsey wins heavyweight pugilistic championship of the world from Jess Willard at Toledo, Ohio.

6.—American sailors on Navy launch flying U. S. flag attacked and robbed by armed Mexicans near Tampico.

8.—President Wilson arrives at New York.

10.—President Wilson delivers Peace Treaty to Senate in open executive session with an address urging ratification.

Edward N. Hurley, Chairman of the Shipping Board, resigns as of Aug. 1.

H. Percival Dodge nominated as Minister to the Kingdom of the Serbs, Croats and Slovenes; John Barton Payne as member of the Shipping Board; and Robert P. Stewart as Assistant Attorney-General.

11.—President signs Army, Navy, and District of Columbia Appropriation bills and the resolution repealing Act for taking over wire communication facilities.

12.—President Wilson vetoes Agricultural Appropriation bill because of repeal of daylight saving, and Sundry Civil Appropriation bill because of inadequate provision for disabled soldiers.

13.—Martini law declared in Longview and Gregg County, Texas, as a result of race riots.

14.—U. S. Government authorizes resumption of trade relations with Germany under blanket license system with certain limitations.

House fails to pass Agricultural Appropriation bill over President's veto.

President Wilson receives Abyssinian mission sent to congratulate the United States on the Allied victory.

15.—Post Office Department orders resumption of mail service with Germany.

Senate adopts resolution calling upon President Wilson for a copy of an alleged treaty concluded between Germany and Japan in October, 1918.

16.—President by proclamations puts entire control of wheat and wheat flour in hands of Julius H. Barnes, Wheat Director.

17.—President Wilson begins conferences with Republican Senators on the Treaty of Peace; Senate adopts resolution asking for information on the Shantung negotiations.

House passes Sundry Civil Appropriation bill with increased provision for rehabilitation of the disabled.

Representative A. F. Lever of South Carolina nominated as a member of the Farm Loan Board.

Alabama Senate rejects Federal woman-suffrage amendment.

18.—President Wilson applies to Senate Committee on Foreign Relations for approval of appointment of American representative on Reparation Commission.

Senate passes Sundry Civil Appropriation bill.

House passes new Agricultural Appropriation bill, rejecting daylight-saving repeal rider.

Herbert Quick resigns as member of the Farm Loan Board.

President Wilson reviews in Washington contingent of Czech-Slovak troops returning from Siberia.

19.—President signs \$613,000,000 Sundry Civil Appropriation bill.

Race riots begin in Washington in attacks on colored quarters by white soldiers in retaliation for repeated assaults on white women.

20.—Mexican Government assures American Embassy at Mexico City that it will make every effort to punish the murderers of John W. Correll.

21.—House rejects amendment to Prohibition Enforcement bill to prohibit private possession of liquor in homes.

Frank L. Polk, Under-Secretary of State, sails for France to replace Secretary Lansing at the Peace Conference.

Four killed and 70 injured in race riots in Washington.

Eleven killed and 27 injured by fall of burning dirigible through roof of Illinois Trust and Savings Bank, Chicago.

22.—Senate Foreign Relations Committee declines to approve provisional appointment by the President of an American representative on the Reparation Commission.

House passes Prohibition Enforcement bill, Federal Wage bill covering all Government employees except those in the Postal Service.

House Rules Committee begins inquiry into conditions in Mexico; Ambassador Henry P. Fletcher submits list of 217 Americans killed in Mexico since 1911; U. S. Government demands punishment of murderers of Peter Catron and warns of a radical change of policy if Americans are not protected.

American military authorities at Coblenz begin issuing passes into Germany to American commercial representatives.

Secretary of State Lansing lands at New York.

Twenty-five hundred military prisoners at Fort Leavenworth mutiny, demanding amnesty.

One killed in continued race riots in Washington despite large concentration of troops.

23.—Senate passes Agricultural Appropriation bill.

Cable censorship exercised by Navy Department abolished.

Letters of Wm. H. Taft to Will H. Hays, Republican National Chairman, proposing six reservations to the Covenant of the League of Nations, published in Washington.

24.—Georgia Assembly rejects Federal woman-suffrage amendment.

Rhode Island issues licenses under state law for sale of "non-intoxicating" beverages containing four per cent. of alcohol; U. S. District Court of Connecticut declares illegal sale of 2.75 per cent. beer.

25.—President in message to Senate declares American troops must remain in Siberia to guard railway.

President issues proclamation placing embargo on export of arms and ammunition to Mexico except under permit.

26.—Pacific Fleet completes passage of the Panama Canal.

27.—Two killed and 50 injured in race riots in Chicago.

28.—Senate passes bill increasing authorized commissioned personnel of the Army from 9,500 to 13,000.

House votes to adjourn from Aug. 2 to Sept. 9. Mexican Government in reply to American note of July 22 describes conditions of anarchy in unsettled districts of Mexico and its measures for protecting foreigners.

Arkansas ratifies Federal woman-suffrage amendment.

Fourteen killed and 76 injured in continued race riots in Chicago.

29.—President Wilson submits to Senate treaty with France pledging aid of the United States in case of unprovoked aggression by Germany.

Senate Committee on Foreign Relations reports treaty with Colombia in revised form.

House passes resolution directing Secretary of War to sell surplus Army food supplies to public.

Dead increased to 24 and injured to 500 in race riots in Chicago.

30.—Postmaster-General Burleson issues order for return of telegraph and telephone systems to their owners at midnight on July 31.

Secretary Baker announces plan for sale of surplus Army food through post office and municipalities.

Loan of \$50,000,000 to France by American bankers announced at Paris.

Montana ratifies Federal woman-suffrage amendment.

Troops ordered out in Chicago to check race riots.

U. S. submarine G-2 sinks off Waterford, Conn.; three lost.

British steamer *Clan Gordon* capsizes off Cape Hatteras; four lost.

American airplane altitude record raised to 30,000 ft. by R. Lind Rohns at Mineola, L. I.

31.—Telegraph and telephone lines returned by Government to private control at midnight.

Cabinet appoints a special committee to report on means of reducing cost of living.

AUGUST

1.—President Wilson submits to Senate protocol to the German Peace Treaty.

Senate passes bill to repeal the daylight-saving measure.

President Wilson asks Congress to create a body to determine railway wages; House votes to abandon recess to deal with cost of living crisis.

Secretary of Commerce Wm. C. Redfield and Chairman F. W. Taussig of U. S. Tariff Commission resign.

Strike of 130,000 railroad shopmen begins in the Chicago district.

2.—House passes bill establishing high tariff rates on chemical glassware.

Four railroad brotherhoods issue statement demanding Government ownership of railroads and profit sharing with employees; bill embodying these demands introduced in House.

Nebraska ratifies Federal woman-suffrage amendment.

King Swope, Republican, elected to Congress from 8th District of Kentucky.

3.—Oscar Lawler, formerly U. S. district attorney for Southern California, his wife and child injured by bomb which destroys their home at Los Angeles.

4.—Ten killed by explosion in arsenal at Rittman, N. J.

6.—Senate Interstate Commerce Committee votes to decline request of President Wilson for an inquiry into railroad wages as related to the high cost of living.

Representatives of 14 unions unite in demand on Railroad Administration for wage increases.

President Wilson issues statement on apparent reservations in Viscount Uchida's declaration on Japan's intentions on Shantung.

Attorney-General Palmer announces that suits under the anti-trust laws are to be brought against five packing companies.

Strike of transit workers begins in Brooklyn.

7.—President Wilson authorizes Director-General of Railroads to act upon railroad shopmen's wage demands, but demands their return to work; strike of shopmen extends to the New Haven.

Strike of actors begins in New York.

8.—Senate adopts resolution directing inquiry into Mexican situation by Foreign Relations Committee.

President Wilson delivers message to Congress on cost of living, recommending punishment of profiteers.

Ukrainian mission submits to U. S. Government an appeal for recognition of the Ukrainian republic.

9.—Strike of Brooklyn transit workers suspended pending arbitration.

10.—Lieuts. Paul H. Davis and Harold G. Peterson, American aviators, captured by Mexican bandits near Candelaria, Tex., and held for ransom.

Attorney-General Palmer requests state food administrators to organize local price committees.

11.—President Wilson notifies Senate that he cannot supply data on the Peace Treaty relating to the Shantung award and other Japanese interests requested in resolutions of July 15 and 17.

12.—Senator Lodge assails the League of Nations in the Senate and outlines five necessary reservations.

Secretary Glass applies to Congress for legislation to allow the use of Secret Service detectives to hunt profiteers.

Secretary Baker announces that demobilization of the army will be completed by the end of October.

National War Labor Board dissolves.

13.—Attorney-General Palmer applies to Congress for legislation to include wearing apparel in list of necessities specified in Food and Fuel Control Act.

Attorney-General orders prosecution under anti-trust law of 19 cement manufacturers in eastern states.

Viscount Grey announced as temporary British Ambassador to the United States.

New York Interborough Rapid Transit Co. announces 10 per cent. increase in wages to its operating employees.

14.—President Wilson accepts request of Senate Foreign Relations Committee for meeting to explain Peace Treaty with full publicity.

Federal officers begin seizures of hoarded food-stuffs in Chicago, St. Louis, and Birmingham.

Henry Ford awarded six cents damages and costs by jury at Mt. Clemens, Mich., in libel suit against the *Chicago Tribune*.

15.—President Wilson vetoes bill to repeal daylight-saving law.

Strike of transit workers begins in Pittsburgh.

16.—Strike of stage hands and theatre musicians begins in New York.

17.—Strike of subway and elevated transit workers of Interborough Rapid Transit Co. begins in New York.

18.—U. S. Government demands quick action by Mexican Government with regard to kidnapping of Lieutenants Davis and Peterson; War Department authorizes payment of ransom of \$15,000.

Nebraska court holds that ratification of Federal prohibition amendment must be approved by referendum.

Strike of railroad shopmen ends.

Strike of New York transit workers ended by 25 per cent. wage increase.

19.—President Wilson confers on Peace Treaty with Senate Foreign Relations Committee at the White House.

House repasses bill repealing daylight-saving law over President's veto.

Lieutenants Peterson and Davis ransomed on Mexican soil, American cavalry and airplanes enter Mexico in pursuit of the bandits.

20.—Daylight-saving law repealed by repassage of bill by Senate over President's veto.

Senator Pittman (Dem.) introduces four interpretative resolutions to Peace Treaty designed to be acceptable to President Wilson.

Four bandits killed by American troops in Mexico.

21.—President Wilson, replying to questions by Senator Fall, declares he has no power to proclaim peace prior to ratification of Peace Treaty.

House passes bill placing high duty on tungsten.

Mexican Government protests against pursuit of bandits in Mexico by American troops.

22.—House passes bill amending Food Control Act to punish profiteers in food and clothing.

President Wilson appeals to Virginia Legislature to ratify Federal woman-suffrage amendment.

23.—Senate Foreign Relations Committee adopts amendment to Peace Treaty providing for reversion of German rights in Shantung to China instead of Japan.

XXXI. CHRONOLOGY AND NECROLOGY

Mexican Government troops report capture of nine bandits believed to be part of kidnappers of Lieutenant Peterson and Davis.

24.—Secretary Baker approves report of Special War Department Board on Courts-martial sustaining existing system.

American cavalry force returns across border from pursuit of Mexican bandits.

25.—President Wilson denies to railroad shopmen wage increase which would raise cost of living, limits increase to four cents an hour, and issues statement of his position on wages and cost of living.

President Wilson asks Congress to extend for one year after declaration of peace Passport Act of May 22, 1918.

26.—Senate Foreign Relations Committee votes amendment to Peace Treaty eliminating United States from all commissions except that on reparations.

Railroad shopmen's leaders reject President Wilson's wage proposals and order strike vote.

27.—Paul S. Reinsch, U. S. Ambassador to China, reported resigned.

Unauthorized strike of steam-railroad workers begins in California in sympathy with striking employees of electric railways.

28.—House passes bill authorizing President to appoint one Army officer to permanent rank of general.

Railroad Administration notifies striking railroad workers in California that unless they return to work on Aug. 30 their places will be filled.

29.—Senate Foreign Relations Committee adopts amendment to Peace Treaty giving United States equal representation with the British Empire in the League of Nations; Senator Knox advocates in Senate rejection of Treaty.

President Wilson submits to Senate treaty with Poland.

House passes bill authorizing retention of 18,000 officers on active list of the Army until 1920.

A. Mitchell Palmer confirmed as Attorney-General. President Wilson confers with Samuel Gompers and committee of steel workers.

30.—Samuel Gompers issues statement demanding ratification of Peace Treaty.

Race riots break out in Knoxville, Tenn.

31.—President Wilson in Labor Day message announces call of an industrial conference to discuss relations of capital and labor and asks labor to cooperate with the Government to lower living costs.

SEPTEMBER

1.—Mexican Embassy at Washington announces willingness of Mexican Government to enter into negotiations with the United States on damage claims.

2.—Senate passes bill authorizing appointment of one permanent full general of the Regular Army. Senator Cummins introduces bill providing for return of railroads to private ownership under strict Government control.

State Department announces authorization of resumption of trade with Hungary.

Treaty between United States and Great Britain for protection of Sockeye salmon of Fraser River signed at Washington.

Henry A. Moehlenpach of Wisconsin nominated as member of Federal Reserve Board.

Army General Staff College inaugurated at Washington.

President Wilson appeals to Kentucky State Democratic Convention to endorse Federal woman-suffrage amendment.

Communist Labor Party of America organized at Chicago by radical wing of Socialist Party.

Mexicans fire on American airplane over Rio Grande near Laredo, Tex., wounding Capt. David W. McNabb.

3.—Senate passes Public Lands Leasing bill.

President Wilson nominates General Pershing for permanent rank of general.

President Wilson issues invitations to a national conference of 45 representatives of the public, labor, and industry in Washington on Oct. 6.

President Wilson leaves Washington for a speaking tour in behalf of the Peace Treaty.

Virginia House of Delegates and Alabama Senate reject Federal woman-suffrage amendment.

4.—Senate confirms General Pershing to permanent rank of general.

Senate Foreign Relations Committee votes to report Peace Treaty with four reservations and 38 amendments.

President Wilson in speeches at Columbus and Indianapolis defends the League of Nations as a necessity to prevent future wars.

Director-General of Railroads Hines notifies striking shopmen on New York Central, Baltimore & Ohio, and Burlington that they must return to work by Sept. 6 or accept permanent dismissal.

State Department announces apology by Mexican Government for firing by Mexican troops on American airplane near Laredo, Tex.

National Socialist Party in convention at Chicago endorses Soviet Republic of Russia and condemns the League of Nations.

5.—Senate passes Prohibition Enforcement bill.

Senator McCumber submits to Senate substitute set of six reservations to the Peace Treaty.

President Wilson in two speeches in St. Louis points out political and commercial dangers if Peace Treaty fails.

Resignation of Secretary of Commerce Wm. C. Redfield announced accepted as of Nov. 1.

6.—President Wilson speaks at Kansas City and Des Moines, Iowa.

Charles M. Galloway resigns as member of U. S. Civil Service Commission.

Resignation of Frederic C. Howe, Commissioner of Immigration at New York, to organize promotion of Plumb plan of railroad control, reported.

Mexican Government refuses American citizens permits to enter Tampico section unless waiver of its responsibility for their safety is accepted.

Strike of actors ended by compromise agreement to run five years.

7.—Three killed in fire on board battleship *New Mexico* at San Francisco.

8.—House passes bill giving Admirals Wm. S. Sims and Wm. S. Benson permanent rank of admiral.

Senator Poindexter replies in Senate to President Wilson's criticisms of opponents of Peace Treaty.

President Wilson speaks at Omaha, Neb., and Sioux Falls, S. D.

Senate Foreign Relations Committee begins investigation of Mexican relations.

Minnesota ratifies Federal woman-suffrage amendment.

Gen. John J. Pershing lands at New York.

9.—Senate passes Export Finance bill.

President Wilson speaks in St. Paul and Minneapolis.

Three Mexican revolutionary leaders petition President Wilson for a hearing to plead the cause of oppressed Mexico.

Fifteen hundred Boston policemen strike to force recognition of union formed in violation of Police Department rules.

Three strikers killed in riots at works of Standard Steel Car Co. at Hammond, Ind.

Hurricane causes large destruction of property at Key West, Fla.; Ward liner *Corydon* sunk in Bahama Channel; Spanish steamer *Valbanera* sunk off Key West with loss of 450 lives.

Cardinal Mercier arrives at New York.

10.—Senate Foreign Relations Committee reports Peace Treaty with 38 amendments and four reservations.

Senators Johnson and Borah open in Chicago speaking tour in opposition to President Wilson's appeal for ratification of Peace Treaty; President Wilson speaks at Bismarck, N. D.

Wm. E. Gonzales of South Carolina confirmed as Ambassador to Peru.

New Hampshire ratifies Federal woman-suffrage amendment.

Strike of steel workers against U. S. Steel Corporation ordered for Sept. 22.

Five thousand state troops concentrated in Boston to check disorders following strike of policemen.

First Division, A. E. F., headed by General Pershing parades in New York.

11.—Senate Foreign Relations Committee minority file report recommending ratification of Peace Treaty without amendment or reservation.

President Wilson speaks at Billings and Helena, Mont.; Senator Johnson speaks in opposition to Peace Treaty in Indianapolis; Senator Reed speaks in Buffalo.

President Wilson, speaking at Helena, Mont., denounces strike of Boston policemen; casualties in disorder reach seven killed and 60 injured.

12.—Senate passes bill amending Food Control Act to punish profiteers.

President Wilson, speaking at Coeur d'Alene, Idaho, and Spokane, Wash., approves reservations of interpretation to Peace Treaty; Senator Johnson speaks at St. Louis.

XXXI. CHRONOLOGY AND NECROLOGY

Wm. C. Bullitt testifies before Senate Foreign Relations Committee that Secretary of State Lansing disapproved Peace Treaty and predicted its rejection by the United States.

13.—House passes bill increasing compensation of disabled soldiers.

Senator Chamberlain issues statement attacking pending Army bill and suggesting impeachment of Secretary of War Baker.

President Wilson speaks in Tacoma and Seattle, Wash.; Senator Johnson speaks at Kansas City and Senator Borah at Fort Dodge, Iowa.

Boston Police Commissioner declares vacant positions of all striking policemen.

Two Mexicans charged with murder lynched at Pueblo, Col.

14.—Hurricane and tidal wave cause loss of hundreds of lives and much property at Corpus Christi, Tex.

15.—Senator Lodge submits to Senate copy of Austrian Peace Treaty obtained from a newspaper correspondent.

Senator McCumber, Republican member of Senate Foreign Relations Committee, submits report denouncing majority report on Peace Treaty.

President Wilson speaks in Portland, Ore.; Senator Johnson speaks at Des Moines, Iowa.

A. C. Townley, President of the National Non-Partisan League, sentenced to jail for three months for disloyalty, with stay of 60 days.

16.—Both houses of Congress adopt resolution tendering General Pershing thanks of the nation for his services in the war.

American Peace Commission issues statement endorsing Peace Treaty with Germany and Covenant of the League of Nations.

17.—President Wilson speaking in San Francisco declares Ireland would have opportunity to present her case to the League of Nations and that the powers were pledged to ultimate return of Shantung territory to China.

President Wilson announces representatives of the public in the National Industrial Conference.

18.—General Pershing receives the thanks of Congress in joint session of the two houses.

President Wilson speaks in Berkeley and Oakland, Cal., and issues statement denying that the British Empire can outvote the United States in the League of Nations.

Roland Rohlfis sets new world altitude airplane record of 34,610 ft. at Mineola, L. I.

19.—President Wilson speaks in San Diego; Senator Johnson addresses the Minnesota legislature at St. Paul and speaks in Duluth.

First cargo of German goods since entry of the United States into the war reaches New York. American steamer *West Arvada* sunk by internal explosion off Dutch coast.

20.—President Wilson speaks at Los Angeles; Senator Johnson ends his speaking tour at Minneapolis and St. Paul.

22.—President Wilson speaks in Reno, Nev.; Senator Reed in attack on League of Nations in Senate takes issue with President's statement that the United States cannot be outvoted.

Senators Thomas and Hoke Smith, Democrats, announce opposition to League of Nations Covenant without reservations.

Strike of employees of U. S. Steel Corporation begins; two killed in riots in Pittsburgh district.

23.—Senate opponents of Peace Treaty win test vote on postponement of debate on Senator Fall's amendment.

President Wilson, speaking at Salt Lake City, declares reservations to the Peace Treaty must be defeated to avoid returning it to the Peace Conference.

Senate resolves to investigate steel strike through Committee on Education and Labor.

United Mine Workers of America in convention at Cleveland resolve to demand a 60 per cent. increase in wages and a six-hour day underground in bituminous coal mines.

24.—House passes bill restoring to Interstate Commerce Commission power to review railroad rates initiated by the President.

President Wilson declares at Cheyenne, Wyo., that acceptance of proposed reservations to Art. X of League of Nations' Covenant means rejection of Peace Treaty.

Secretary Daniels announces selection of Rear-Adm. Robert E. Coontz for Chief of Naval Operations to succeed Adm. Wm. S. Benson.

25.—President Wilson, speaking in Denver and Pueblo, Col., declares that he will regard the Peace Treaty as rejected if proposed reservations to Art. X of League of Nations Covenant are accepted.

Senate Committee on Education and Labor begins investigation of steel strike.

26.—President Wilson abandons his speaking tour because of physical breakdown.

Senator Johnson defends in Senate amendment to League of Nations Covenant equalizing representation of Great Britain and United States.

General Education Board announces gift of John D. Rockefeller of \$20,000,000 for the improvement of medical education.

Sixteen hundred interned Germans deported from New York.

Viscount Grey, British Special Ambassador to the United States, arrives at New York.

27.—Shipping Board takes over from War Department *Imperator* and seven other German liners allocated to the United States after the armistice.

National Committee for Organizing Steel Workers orders strike in plants of Bethlehem Steel Co. on Sept. 29.

28.—President Wilson arrives at Washington. Negro lynched at Omaha, Neb., by mob which fires jail and attempts to hang mayor; Federal troops called out to restore order.

29.—Existing labor contract in anthracite mines extended by agreement to March 31, 1920.

Strike of employees of Bethlehem Steel Co. fails to close any of its plants.

Three negroes lynched near Montgomery, Ala.

30.—House passes bill limiting time of holding foodstuffs in cold storage to 12 months.

Senate passes resolution asking State Department for explanation of landing of American marines at Trau, Dalmatia.

Brand Whitlock, nominated and confirmed as Ambassador to Belgium; Rear-Adm. Robert E. Coontz nominated as Chief of Naval Operations.

L. B. Rainey, Democrat, elected to Congress from 7th District of Alabama.

Ohio Supreme Court affirms decision of lower court that ratification of Federal prohibition amendment must be submitted to referendum.

Utah ratifies Federal woman-suffrage amendment.

OCTOBER

1.—House passes bill changing system of ship measurement for Panama Canal tolls.

War restrictions on commercial intercourse abolished except against Russia and partly against Austria, Hungary, Bulgaria, and Turkey.

Senator Johnson speaks in opposition to League of Nations in San Francisco; Senator Reed prevented from speaking in Ardmore, Okla.

Elbert H. Gary, chairman of the Board of Directors of the U. S. Steel Company, testifies before Senate Committee on Labor that open shop is the great issue in the steel strike.

Lockout of printers affiliated with local unions begins in New York; more than 200 periodicals suspend publication.

Nine killed in race riots at Elaine, Ark.

2.—Senate rejects 35 amendments to Peace Treaty offered by Senator Fall.

Senator Smith, Democrat, proposes seven reservations to Peace Treaty to clear up doubtful or objectionable language.

Senate passes bill increasing limit of loans of national banks on bills of lading and sight drafts to 25 per cent. of capital and surplus.

Scandinavian-American Bank of Fargo, N. D., financial agent of Non-Partisan League, declared insolvent by State Banking Board.

King Albert and Queen Elizabeth of the Belgians and Crown Prince Leopold arrive at New York.

3.—Senator Johnson speaks against League of Nations in Los Angeles and Senator Reed in Lincoln, Neb.

4.—Massachusetts Republicans in convention recommend prompt ratification of Peace Treaty without amendment but with reservations to protect interest of the United States; Democrats recommend amendments to League of Nations Covenant.

Senator Reed abandons speaking tour in opposition to League of Nations at Denver.

500 injured in steel strike riots at Gary, Ind.

6.—National Industrial Conference opened in Washington by Secretary of Labor Wilson.

Federal and state troops take control and declare martial law in Gary, Indiana Harbor, and East Chicago, Ind.

Two negroes lynched by burning at Augusta, Ga.

7.—Senate votes to confer permanent rank of Lieutenant-general on Major-Gen. Enoch H. Crowder.

Franklin K. Lane, Secretary of the Interior, elected chairman of National Industrial Conference. More than 100 Finnish Bolsheviks expelled from Weirton, W. Va.

Strike of longshoremen begins in New York.
8.—American Sheet & Tin Plate Co. plant at McKeesport, Pa., damaged by bomb.

Sixty-three airplanes begin race across continent and back from Mincola, L. I., and San Francisco; three aviators killed.

9.—House repeals Canadian Reciprocity Act of 1911.

Senator Walsh, Democrat, attacks Peace Treaty in Senate and advocates amendments and reservations.

Railroad Administration assumes control of freight shipments to port of New York.

10.—Strike of longshoremen spreads to Boston, Baltimore, Norfolk, and other Atlantic ports.

Strike of Pennsylvania Railroad shipmen begins at Altoona and Hollidaysburg, Pa.

12.—Col. Edward M. House lands at New York from France.

13.—Strike of teamsters of American Railway Express Co. begins at New York; embargo placed on shipments to and from city.

14.—House Foreign Affairs Committee orders favorable report on resolution extending one year after proclamation of peace war-time restrictions on passports.

Fabre liner *Venezia* abandoned on fire in mid-Atlantic.

15.—United Mine Workers of America order strike of bituminous-coal miners beginning Nov. 1.

Secretary Baker, speaking in Cleveland, pledges full forces of Federal Government to suppress lawlessness.

16.—Senate rejects six amendments to Peace Treaty providing for restoration of economic privileges on Shantung Peninsula to China.

House passes resolution extending for one year war-time restrictions on issue of passports.

17.—Senate rejects Senator Fall's two amendments to Peace Treaty limiting American representation on the reparations commission.

18.—Lieut. Belvin W. Maynard lands at Mincola winner of airplane race across the continent and return.

19.—Wm. O. Jenkins, American consular agent at Puebla, Mexico, kidnapped by bandits and held for ransom.

Five hundred Federal troops arrive at New York for duty in connection with longshoremen's strike; Department of Labor conciliation commission opens hearings.

20.—State and War Departments announce that American participation in carrying out certain important provisions of the Peace Treaty must await ratification by the Senate.

21.—National Industrial Conference rejects proposals for recognition of the right of collective bargaining and Samuel Gompers' plan for arbitration of the steel strike; President Wilson addresses appeal to Industrial Conference to compose its differences and agree on a constructive programme.

Strike of longshoremen at New York officially declared ended but few strikers return to work.

22.—Senate Foreign Relations Committee adopts 10 reservations to Peace Treaty.

Senate passes Deficiency Appropriation bill carrying \$42,000,000, and bill extending for one year war-time restrictions on passports.

House passes bill authorizing President to call an international conference on regulation of cable and radio communications.

President signs bill amending Food Control Act to prevent profiteering in food and clothing.

Labor group withdraws from National Industrial Conference following failure to secure a satisfactory agreement on principle of collective bargaining.

23.—Senate Foreign Relations Committee adopts four additional reservations to Peace Treaty.

Senate Interstate Commerce Committee reports Cummins Railroad bill.

House passes bill creating a national budget system.

House unseats John F. Fitzgerald of Massachusetts in favor of Peter F. Tague, both Democrats, on ground of fraud.

National Industrial Conference as originally constituted dissolved; President Wilson requests public group to continue deliberations.

Strike of express drivers at New York ended by declaration of Railroad Administration that troops would be used to replace strikers not returned to work within 48 hours.

24.—Senate rejects four amendments to Peace Treaty, three relating to representation of Great Britain in the Assembly of the League of Nations.

House special committee of inquiry recommends disqualification of Victor L. Berger of Wisconsin for disloyalty and holding of new election.

Public group of National Industrial Conference adjourns with recommendation to President to summon another conference; Samuel Gompers announces call for a conference of organized labor.

Coal miners and operators suspend negotiations in Washington to avert threatened strike despite appeal of President Wilson to arbitrate their differences.

25.—Senate Banking Committee votes to reject nomination of John Skelton Williams as Controller of the Currency.

United States notifies Mexican Government that effective steps must be taken to secure release of Wm. O. Jenkins, including payment of ransom if necessary.

President Wilson issues statement declaring threatened coal strike unlawful and promising to enforce laws.

26.—Wm. O. Jenkins ransomed from Mexican bandits.

Senator Miles Poindexter of Washington announces his candidacy for Republican nomination for President.

Militia called to Knoxville, Tenn., to suppress riots of street-car strikers.

Kikuro Shidehara, new Japanese Ambassador, arrives in the United States.

27.—President Wilson vetoes Prohibition Enforcement bill; House repasses it over veto.

Senate rejects Senator Johnson's amendment to Peace Treaty to equalize representation of United States and the British Empire in the Assembly of the League of Nations.

International Federation of Trade Unions convenes at Washington.

King Albert and Queen Elizabeth of the Belgians arrive at Washington for a three-day visit.

28.—Senate repasses Prohibition Enforcement bill over President's veto; Act becomes immediately effective.

King Albert of the Belgians received by both Houses of Congress.

International Congress of Working Women convenes at Washington.

Steamer *Muskegon* wrecked at entrance to Muskegon, Mich., harbor with loss of 20 lives.

29.—Senate rejects three amendments to League of Nations' Covenant designed to equalize British and American representation.

International Labor Conference authorized under Peace Treaty convenes at Washington.

Officials of United Mine Workers in conference at Indianapolis decide to proceed with coal strike called for Nov. 1.

American Federation of Labor and railroad brotherhoods issue call for conference of officials of all affiliated unions in Washington on Dec. 13.

30.—House passes Oil and Coal Lands Leasing bill.

President Wilson issues executive order restoring war powers of Fuel Administrator over prices and distribution of coal; Fuel Administrator issues order instituting priority system.

Senate adopts resolution assuring administration of the support of Congress during present emergency.

Norman H. Davis of Tennessee nominated as Assistant Secretary of the Treasury.

International Labor Conference votes to admit German and Austrian delegates.

King Albert and Queen Elizabeth of the Belgians visit briefly President Wilson.

31.—U. S. District Court at Indianapolis issues temporary injunction restraining officers of United Mine Workers from further activity in strike of coal miners.

Senate concurs in resolution pledging support of Congress to the Administration in the industrial crisis.

Federal troops arrive at Huntington, W. Va., to protect non-union coal districts.

General Pershing in testimony before House Military Affairs Committee advocates universal military service and a standing army of not more than 300,000.

Wm. C. Redfield, Secretary of Commerce, retires.

International Labor Conference elects Secretary of Labor Wilson President.

King Albert and Queen Elizabeth of the Belgians sail from Newport News, Va.

NOVEMBER

1.—Strike of bituminous-coal miners begins throughout the United States.

Major-Gen. Wm. M. Black, Chief of Engineers, U. S. A., retires.

California ratifies Federal woman-suffrage amendment.

Prince Lubomirsky, first Polish Minister to the United States, presents his credentials.

2.—Rockefeller Institute for Medical Research announces additional endowment by John D. Rockefeller of \$10,000,000.

3.—Senate passes bill restoring re-making powers of Interstate Commerce Commission.

Pleasant A. Stovall, U. S. Minister to Switzerland, reported resigned.

Fifteen union coal mines in West Virginia resume operations.

Militry control proclaimed in Wyoming.

4.—Elections held throughout the United States; Calvin Coolidge (Rep.) elected governor of Massachusetts, Edwin P. Morrow (Rep.) governor of Kentucky, Albert C. Ritchie (Dem.), governor of Maryland, and Edward I. Edwards (Dem.), governor of New Jersey; Ohio rejects ratification of Federal prohibition amendment; Representative J. Hampton Moore elected mayor of Philadelphia.

Senate rejects amendment to Peace Treaty to eliminate clauses transferring economic rights in Shantung to Japan.

5.—Senate rejects amendment to Peace Treaty to eliminate labor sections.

President Wilson congratulates Governor Coolidge (Rep.) of Massachusetts on his reelection as a "victory for law and order."

Maine ratifies Federal woman-suffrage amendment.

Strike of longshoremen at New York abandoned.

7.—Senate adopts preamble to resolution of ratification of Peace Treaty submitted by Foreign Relations Committee.

House passes Edge bill to permit incorporation of organizations to extend foreign credits.

Federal and local agents arrest hundreds of Russian radicals in New York, Detroit, and other cities.

8.—U. S. District Court at Indianapolis orders United Mine Workers of America to revoke coal strike order by Nov. 11.

Senate adopts reservation to Peace Treaty asserting right of United States to be sole judge of obligations to League of Nations in case of notice of withdrawal.

House passes bill authorizing sale of Government ships to American citizens.

J. W. Harrell (Rep.) elected Representative from Fifth Oklahoma District.

9.—American Federation of Labor issues statement denouncing coal-strike injunction, endorsing strike, and pledging support to strikers.

Toledo Railways & Light Co. moves rolling stock into Michigan on ratification by electorate of ouster ordinance.

10.—House Interstate Commerce Committee reports Esch Railroad bill.

Edward, Prince of Wales, enters the United States at Rouse's Point, N. Y.

11.—United Mine Workers of America order strike of bituminous miners abandoned.

Four former soldiers parading at Centuria, Wash., shot and killed from ambush by I. W. W.; one I. W. W. lynched.

Prince of Wales arrives in Washington as guest of nation.

12.—House unseats Victor L. Berger of Wisconsin, convicted under Espionage Act.

Commissioner of Internal Revenue announces appointment of John F. Kramer of Mansfield, Ohio, as National Prohibition Commissioner; U. S. District Courts at Providence and Louisville declare war-time prohibition invalid.

Governor Frazier of North Dakota proclaims martial law and orders seizure and operation of coal mines by the State.

13.—Senate adopts reservation of Foreign Relations Committee to Art. X of League of Nations Covenant, after rejection of compromise reservations offered by minority.

I. W. W. headquarters raided in Seattle, Spokane, Portland, and other western cities.

14.—Bituminous-coal operators and officers of United Mine Workers meet in Washington.

President signs executive order establishing new schedule for customs duties based on reduced values of foreign currencies.

U. S. District Courts at New York uphold validity of war-time prohibition.

15.—Senate under closure rule adopts 10 more reservations to Peace Treaty.

Railroad Administration offers railroad brotherhoods new wage scale involving annual increase of \$36,000,000.

Wm. O. Jenkins, U. S. consular agent at Puebla, Mexico, arrested by Mexican authorities on charge of connivance with bandit who kidnapped him.

Secretary of the Treasury Glass appointed Senator from Virginia.

Wm. S. Broughton of Illinois appointed Commissioner of the Public Debt.

National Grange in convention at Grand Rapids declines invitation of Samuel Gompers to conference with labor.

17.—Senate rejects two final reservations to Peace Treaty proposed by Foreign Relations Committee.

House passes Esch Railroad bill.

Kansas Supreme Court places all coal mines in state in hands of three receivers for State operation.

U. S. District Court at Chicago upholds validity of war-time prohibition.

U. S. Supreme Court orders cancelled patents to 6,000 acres of California oil land granted to Southern Pacific Ry. Co.

18.—Senate rejects all but two of 25 reservations to Peace Treaty offered by individual members.

House passes bill authorizing railroads to reimburse Government for \$400,000,000 advanced for equipment.

President vetoes bill restoring pre-war rate-making power to Interstate Commerce Commission.

U. S. District Court at Peoria upholds validity of war-time prohibition.

19.—Senate rejects resolutions to ratify Peace Treaty with majority reservations and without any reservations whatever; President Wilson declares in letter to Senator Hitchcock that majority reservations amount to nullification.

First session of Sixty-sixth Congress ends; President signs bill creating an equipment trust for refunding of Government advances to railroads and resolution extending to Jan. 1 restrictions on dye imports.

U. S. District Court at Bismarck, N. D., orders State Government to return to owners coal mines of Washburn Lignite Co.

U. S. Circuit Court of Appeals stays injunction of District Court at Providence against enforcement of war-time prohibition.

Wm. O. Jenkins committed to penitentiary at Puebla, Mexico.

20.—State Department in note to Mexico demands immediate release of Wm. O. Jenkins and warns against further molestation.

President Wilson announces appointment of 17 former Federal and State officials to meet in conference on industrial situation on Dec. 1.

Coal miners reject 20 per cent. wage increase offered by operators.

Battleship *California* launched at Mare Island.

21.—Senator Lodge issues statement in king reservations to Peace Treaty a campaign issue.

President by proclamation revives functions of Food Administration and transfers its authority to Attorney-General.

Grain Corporation announces removal of embargoes on wheat and flour on Dec. 1.

Shipping Board releases former German liner *Imperator* to Great Britain.

U. S. District Court at St. Louis enjoins interference with manufacture of 2.75 per cent. beer.

22.—Gaylord M. Saltzgeber, Commissioner of Pensions, reported resigned.

U. S. District Court at Milwaukee upholds validity of Prohibition Enforcement Act.

North Dakota surrenders control of Washburn Coal Co.'s lignite mines to owners.

Edward Prince of Wales sails from New York.

23.—Coal miners approve plan for 31.6 per cent. wage increase proposed by Secretary Wilson.

Twenty-five killed in fire in dance hall at Villeplatte, La.

24.—Railroad Administration grants wage increases to maintenance of way employees and establishes basic eight-hour day.

National Labor Party formed at Chicago.

25.—Baron Romano Avezzeno, Italian Ambassador, arrives in the United States.

Governor Cox of Ohio removes Mayor C. E. Poorman of Canton for failure to maintain order during coal strike.

Strike of printers in New York ended.

26.—Fuel Administrator Garfield for Government offers coal miners wage increase of 14 per cent.; offer accepted by operators but rejected by miners.

Mexico in note declines to release Jenkins, declaring demand has no legal basis.

U. S. District Court at New Orleans declares war-time prohibition unconstitutional.

Fifty-two labor agitators arrested by Federal troops at Carneyville coal-mining camp, Wyoming.

27.—Conference of coal operators and miners end without agreement.

U. S. District Court at Fargo, N. D., denies application for injunction to restrain State from seizing lignite mines.

28.—Department of Justice announces instructions to all U. S. attorneys in coal districts to prosecute all conspiracies of coal operators or miners.

29.—Note addressed to Mexico demanding immediate release of Wm. O. Jenkins.

Senator Truman H. Newberry of Michigan and 133 others indicted for election frauds by Federal grand jury at Grand Rapids.

International Labor Conference adjourns. Strike of railroad yardmen and trainmen begins at Kansas City.

DECEMBER

1.—Second session of Sixty-sixth Congress opens. Fuel Administrator Garfield issues statement on coal-conservation regulations to be enforced through Railroad Administration.

J. Franklin Fort, Chairman of the Federal Trade Commission resigns.

Second industrial conference meets in Washington under chairmanship of Secretary Wilson.

Four coal mines in Kansas reopened by the State with volunteer workers.

North Dakota ratifies Federal woman-suffrage amendment.

2.—President's message to Congress recommends democratization of industry, reduction of taxation, and repression of bolshevism.

Railroad Administration orders denial of bunker coal to foreign ships after Dec. 5.

South Dakota Republican State Convention meeting at Pierre endorses Gen. Leonard Wood for President; Democratic State Convention endorses President Wilson for a third term.

3.—Senator Fall of New Mexico introduces resolution recommending breaking off diplomatic relations with Mexico.

Coal operators meeting in Washington agree on new wage scale for mine workers.

U. S. District Court at Indianapolis summons 84 officers of United Mine Workers of America to answer charges of contempt.

4.—Senate Foreign Relations Committee appoints Senators Fall and Hitchcock a subcommittee to consult with President Wilson on the Mexican crisis.

Wm. O. Jenkins released from prison by Mexican authorities at Puebla on bail furnished by J. S. Hansen.

Representative Tinkham of Massachusetts introduces resolution in House to declare war with Germany at an end.

Joshua W. Alexander of Gallatin, Mo., nominated as Secretary of Commerce.

U. S. District Court at Indianapolis summons special grand jury to investigate conspiracies to restrict output of coal.

Governor Gardner of Missouri issues proclamation seizing 15 coal mines in Barton County.

South Dakota ratifies Federal woman-suffrage amendment.

5.—Senators Fall and Hitchcock confer with President Wilson on Mexican situation.

Martial law proclaimed in coal regions of Oklahoma and mines reopened with volunteer workers.

Toledo Railways Co. restore street-car service on repeal by Council of ouster ordinance.

6.—President Wilson proposes to miners definite terms for settlement of coal strike.

8.—President Wilson declares in letter to Senator Fall that adoption of his resolution to sever diplomatic relations with Mexico would be a reversal of constitutional practice in the conduct of foreign relations. Senator Lodge announces no further action will be taken.

Senator King introduces resolution authorizing use of American armed forces if coercion of Germany becomes necessary.

Fuel Administrator Garfield issues drastic regulations rationing use of soft coal.

Victor L. Berger renominated as Representative in primary election in Milwaukee.

9.—House passes bill to prevent dumping in American markets.

American peace delegation leaves Paris.

Frederick G. Hugo, American ranch manager, kidnapped by Villistas at Muzquiz, Mexico.

10.—United Mine Workers officials accept President Wilson's proposals and order strike ended. Republican National Committee in session at Washington decide to hold convention in Chicago beginning June 8.

11.—Fuel Administrator Garfield appeals to President for immediate action on his resignation because of dissatisfaction with coal-strike settlement.

12.—Senate passes bill extending Government control of sugar to end of 1920.

Railroad Administration authorizes lifting of coal restrictions by regional directors at their discretion.

Colorado ratifies Federal woman-suffrage amendment.

13.—Senator Johnson of California announces his candidacy for the Presidency.

Conference of representatives of 119 labor unions summoned by American Federation of Labor opens at Washington and adopts labor "bill of rights."

14.—President Wilson issues statement that he plans no move that will relieve Republican Senate leaders of undivided responsibility for fate of Peace Treaty.

Steel workers' strike committee of 24 union presidents vote to continue steel strike.

15.—U. S. Supreme Court upholds constitutionality of war-time prohibition.

Frederick G. Hugo released by Villa and returned to Muzquiz without ransom.

James W. Gerard files minority Democratic nominating petition in South Dakota Presidential-preference primary.

Two negroes accused of murder lynched at Chapmanville, W. Va.

16.—House passes bill extending life and powers of Sugar Equalization Board.

House Committee on Agriculture tables resolution to repeal war-time prohibition.

Mexico notifies United States of release of W. O. Jenkins on bail furnished by an American citizen but insists that legal process against Jenkins on charge of false testimony must continue.

Clyde R. Hoey (Dem.) elected to Congress from 9th District of North Carolina.

Senator Warren G. Harding of Ohio announces candidacy for Republican nomination for President; Governor Frank M. Lowden of Illinois files minority Republican nominating petition in South Dakota Presidential-preference primary.

17.—Adm. Wm. S. Sims in letter to Secretary Daniels objects to awards to Navy officers under his command and declines to accept distinguished Service Medal.

Great Britain notifies United States of readiness to release American-owned goods seized during the war on establishment of the fact of American ownership at the time of shipment.

Rhode Island brings suit in U. S. Supreme Court to declare void the Eighteenth Amendment and enjoin enforcement of Prohibition Enforcement Act.

Delegation representing organized labor and farm organizations appeal to President to retain railroads under Government control for at least two years more.

18.—Department of Justice announces agreement with five largest packing firms to retire from all business except that of meat packing and dairy products.

Twenty-seven members of the I. W. W. convicted of conspiracy against Government by Federal jury at Kansas City, Kan.

Tanker J. A. Chanslor wrecked off Cape Blanco, Oregon, with loss of more than 30 lives.

19.—Senate passes bill increasing allowances to war-risk insurance beneficiaries.

Victor L. Berger, Socialist, reelected to Congress from 5th Wisconsin District.

20.—Senate passes Cummins Railroad bill.

Senate Foreign Relations Committee reports Knox resolution declaring end of state of war; Senator Lodge prevents action on proposal of Senator Underwood for appointment of a committee to consider ways and means of securing ratification of Peace Treaty.

House passes bill providing for exclusion and deportation of aliens who are anarchists or affiliated

XXXI. CHRONOLOGY AND NECROLOGY

with anarchist societies; Senate orders investigation of Russian propagandists in the United States.

President Wilson appoints Henry M. Robinson, John P. White, and Rembrandt Peale a commission to investigate the bituminous-coal industry.

Both houses of Congress adjourn to Jan. 5.
Frank Polk, Gen. Tasker H. Bliss, and Henry White of American Peace Commission land at New York.

American liner *Manchuria*, first passenger ship for Germany since August, 1914, sails from New York for Hamburg.

Twenty-three killed in collision on Canadian Pacific near Onawa, Me.

21.—U. S. transport *Buford* sails from New York with 249 anarchists deported to Soviet Russia, including Alexander Berkman and Emma Goldman.

22.—American Embassy ordered to make representations to Mexican Government in behalf of American sailors arrested at Mazatlan.

Attorney-General Palmer issues report of progress of the Government's efforts to reduce the cost of living.

23.—Norman Hapgood, unconfirmed Minister to Denmark, lands at New York.

24.—President Wilson proclaims the release of the railroads and express companies from Federal control on March 1, 1920.

President signs bill increasing compensation under War-Risk Insurance Act.

State Department revokes as of Jan. 1, 1920, all outstanding unused licenses for exportation of arms and munitions to Mexico.

Rockefeller Foundation announces gifts of John D. Rockefeller of \$50,000,000 to the Foundation and \$50,000,000 to the General Education Board.

26.—Secretary Daniels reconvenes Naval Board on Jan. 5 to reconsider naval awards.

28.—President's second Industrial Conference issues plan for new Federal machinery for adjustment of industrial disputes.

29.—Representatives of four railroad brotherhoods and affiliated unions issue declaration of principles opposed to anti-strike legislation.

30.—Senator Johnson of California files Republican nominating petition in South Dakota Presidential-preference primary.

31.—President signs Sugar Control bill.

Gen. Leonard Wood, accepts Republican majority nomination in South Dakota Presidential-preference primary.

FOREIGN CHRONOLOGY

JANUARY

1.—Ignace Jan Paderewski arrives at Warsaw. German authorities declare Posen, German Poland, under martial law.

British yacht *Iolaire* sunk off Stornoway, Scotland, with loss of 270 sailors on holiday leave.

2.—Adm. Reinhardt von Scheer, Chief of the German Admiralty Staff, resigns.

5.—New Government reported formed at Belgrade composed of representatives of all the Yugoslavs.

Polish Conservatives and Liberals led by Prince Eustache Sapieha unsuccessfully attempt revolution against Socialist Government.

6.—Spartacist group of extreme Socialists attempt revolution in Berlin with hundreds of casualties.

7.—Strike begins in port of Buenos Aires.

8.—State of siege declared in Berlin; Government gains control with the aid of loyal troops.

9.—Alexandrovsk and Grushevsky, Northern Caucasus, reported captured from Bolsheviks by forces of General Denikin.

10.—Premier Lloyd-George announces a new British Cabinet.

General Dellapaine establishes military dictatorship in Argentina to suppress strike riots in Buenos Aires.

11.—Grand Duchess Marie of Luxemburg abdicates.

Dublin police raid Sinn Fein headquarters.

12.—German Government troops recaptured Berlin Police Headquarters from Spartacists.

13.—Elections in Bavaria and Wurttemberg result in severe defeat of extreme Socialists.

General strike called in Lima and Callao, Peru.

14.—Martial law declared throughout Argentina for 30 days.

15.—Karl Liebknecht and Rosa Luxemburg, Spartacist leaders, killed in Berlin and revolt definitely suppressed.

Princess Charlotte of Luxemburg takes the oath as Grand Duchess.

18.—Italian Cabinet reorganized by Premier Orlando following resignation of opponents of Baron Sonnino's extreme annexationist policy.

Polish Cabinet announced as in formation with Ignace Jan Paderewski as Premier and General Pilsudski as Foreign Minister.

17.—Spanish Government, fearing general strike, suspends constitutional guarantees in Barcelona Province.

19.—Elections to German National Assembly result in decisive victory of moderate Socialists and conservative parties.

Portuguese monarchy proclaimed at Oporto.

20.—Turkish Cabinet headed by Tewfik Pasha resigns.

Ufa, Siberia, reported captured by Bolsheviks.

21.—Irish Sinn Feiners elected to British House of Commons constitute a Parliament in Dublin and issue a declaration of independence of the Irish Republic.

German Government convokes National Assembly at Weimar on Feb. 6.

23.—Monarchist revolt in Lisbon garrison suppressed by loyal troops.

24.—New Albanian Cabinet announced with Turkish Pasha as Premier.

Sweden expels Russian Bolshevik legation.

25.—Peasant revolution breaks out in Rumania. Orenburg, Siberia, reported captured by Bolsheviks.

26.—Elections to Prussian State Convention carried by moderate Socialists.

Portuguese Cabinet resigns.

27.—Ekaterinoslav reported occupied by Ukrainian Bolsheviks.

28.—Soviet Government of Ukraine established at Kharkoff.

Vladikavkaz captured from Bolsheviks by forces of General Denikin.

29.—United States recognizes Polish Government of M. Paderewski.

31.—Military suppress strike riots in Glasgow. Kiev reported captured by Bolsheviks.

FEBRUARY

2.—Monarchist government constituted at Oporto, Portugal.

3.—President Wilson addresses French Chamber. International Socialist and Labor Conference opens at Berne without American or Belgian representation.

4.—British Parliament opens.

Edward de Valera and two other Sinn Fein leaders escape from prison at Lincoln, England.

German Government troops enter Bremen after bombardment and drive out Spartacist rebels.

Russian Bolshevik Government reported to have called to the colors all men between the ages of 29 and 45.

5.—British Government meets threat of London electrical workers to deprive the city of light by a strike by issuing order under Defense of Realm Act making such action a punishable offense.

Norwegian Cabinet headed by Premier Gunnar Knudsen resigns.

8.—German National Assembly opens at Weimar; Chancellor Ebert denounces armistice terms and threatens to break off negotiations with Allies if pressed too far.

Elections to Polish National Assembly reported carried by party headed by M. Paderewski.

7.—Edward David, Social Democrat, elected President of the German National Assembly.

9.—Polish National Assembly opens at Warsaw.

10.—German National Assembly adopts provisional constitution.

11.—German National Assembly elects Friedrich Ebert President of the German State.

14.—Complete suppression of monarchist revolt in Portugal announced.

16.—Elections to Austrian National Assembly carried by Social Democrats.

Herr Fehrenbach, Centrist, elected President of German National Assembly.

17.—New Montenegrin Cabinet reported formed under J. S. Plamenatz as Premier.

XXXI. CHRONOLOGY AND NECROLOGY

18.—General strike proclaimed in Ruhr District of Germany; Spartacists take control of Bochum, Hamborn, and other places.

19.—Reactionary insurrection breaks out in Munich, Bavaria.

Premier Clemenceau of France wounded by anarchist in attempted assassination.

20.—Polish National Assembly appoints Gen. Joseph Pilsudski Chief of State pending adoption of Constitution.

Spartacist rebels in Munich occupy police headquarters.

Communist revolution breaks out in Budapest.

Habibullah Khan, Amir of Afghanistan, is assassinated at Taghman, and is succeeded by his son, Amanullah Khan.

21.—Kurt Eisner, Socialist Premier of Bavaria, assassinated in Munich by Count Arco Valley; four Ministers shot in Landtag; coalition Socialist Government formed; state of siege proclaimed in Munich and Augsburg.

25.—British House of Commons to avert threatened strike of coal miners passes bill to create a commission of inquiry.

Spartacist revolt breaks out in Mannheim, Germany.

27.—Great Britain recognizes independence of Poland.

General strike begins in chief towns of Thuringia and Saxony; German railway traffic disorganized.

Spanish Cortes suspended; martial law proclaimed in Province of Lerida, Catalonia.

National industrial conference meets in London.

28.—German National Assembly passes bill creating a National Army.

Food riots in Madrid suppressed by military.

MARCH

1.—Provisional Chamber of Deputies of Kingdom of the Serbs, Croats, and Slovenes opens at Belgrade.

Italian Parliament opened.

Danish Cabinet headed by Premier C. T. Zahle resigns.

Baltazar Brum inaugurated as President of Peru. Demonstrations for independence occur throughout Korea.

3.—General strike begins in Berlin; Spartacists seize Police Headquarters; Government troops recover Halle from Spartacists.

4.—Austrian National Assembly opens at Vienna.

5.—Twelve men killed in riot at Kinmel military camp, Wales.

6.—German Government troops recover buildings in Berlin in hands of Spartacists.

7.—General strike in Berlin abandoned. New Turkish Cabinet formed with Damah Pasha as Grand Vizier.

11.—Siberian troops rout Bolsheviks on 30-mile front.

12.—Korean nationalists issue declaration of independence.

American marines clash with Japanese soldiers in Tientsin, China.

13.—Ufa recaptured from Bolsheviks by Siberians.

14.—Revolutionary disturbances begin in the cities of Upper Egypt.

15.—Prussian Diet opens at Berlin.

Argentine Government issues decree nationalizing port of Buenos Aires and ordering striking workmen to load and unload all vessels.

16.—Austrian Cabinet formed under Chancellor Renner.

18.—Danish Cabinet headed by Premier Zahle withdraw resignations at request of the King.

20.—British Coal Commission in report recommends wage increases to miners and reduction of working hours from eight to seven and ultimately to six.

Prussian Diet adopts bill provisionally regulating Government, and Cabinet headed by Premier Hirsch resigns.

21.—Alexander Millerand appointed Governor of Alsace-Lorraine.

22.—Count Karolyi, President of Hungarian Republic, and his Cabinet resign and turn over Government to communists, appealing against Peace Conference to proletariat of the world; Bolshevik Cabinet formed at Budapest with Alexander Gorbai as President and Bela Kun as Foreign Commissary.

23.—Former Emperor Charles of Austria-Hungary and his family leave Austria for Switzerland.

24.—General strike declared in Barcelona.

25.—Prussian Cabinet completed under Paul Hirsch as Premier.

Martial law proclaimed throughout Spain because of labor troubles.

Ekaterinevskaya reported captured from Bolsheviks by Cossacks.

26.—Strike of railroad workers begins in Austria.

27.—Gen. Sir Edmund Allenby arrives at Cairo to suppress the insurrection of Egyptian Nationalists.

28.—Rear-Adm. Adolf von Trotha appointed Chief of German Admiralty.

Austrian railroad strike ended by wage increases granted by Government.

29.—Mexican Government announces concessions to Japanese to exploit agricultural lands in Lower California.

Polish Chamber of Deputies votes unanimously for treaty of alliance with Entente powers.

Arbitration treaty between Great Britain and Chile concluded at Santiago.

31.—British House of Commons passes Military bill.

APRIL

3.—Gen. Aurelio Blanquet reported to have landed in Mexico and joined forces of Felix Diaz. French Chamber rejects two woman-suffrage amendments to Electoral Reform bill.

Strike begins at Krupp works at Essen, Germany.

4.—British Joint Employees and Employers Committee adopts report demanding creation of a rational industrial council and definite legislation on wages, hours, and trade-union recognition.

Antanas Smetonas elected President of Lithuanian Republic.

5.—Austrian National Assembly passes bill banishing Hapsburgs and confiscating their property.

7.—Conference of Soldiers' Councils of Austria at Vienna decides against Soviet republic and favors a Socialist government.

Soviet republic proclaimed in Munich, Bavaria; Hoffmann Government transferred to Nurnberg.

8.—Troops suppress riots in Cairo, killing five and wounding 50.

German Soldiers' and Workmen's and Peasants' Congress opened at Berlin.

9.—New Egyptian Cabinet formed under Rushdi Pasha as Premier.

Birzula, Korosten, Iskoret, Proskurov, and Staro Konstantinov reported occupied by Bolsheviks.

10.—Quebec Province in special election rejects prohibition of wines and beer.

Thirty-eight killed and 100 wounded in two days of rioting in Cairo.

Perekop, Crimea, reported captured by Bolsheviks.

11.—German National Assembly adopts resolution demanding peace treaty in accord with President Wilson's 14 points.

Bavarian Soviet Republic overthrown by communists in Munich; Council of Ten assumes power.

Gen. Emiliano Zapata, Mexican rebel leader, reported killed by Government troops.

Prohibition defeated in New Zealand.

12.—Serious riots at Amritsar, India, suppressed by military with much bloodshed.

Kemal Bey hanged in Constantinople for Armenian massacres.

War Minister Neuring of Saxony killed in Dresden by discharged soldiers.

Simferopol and Eupatoria, Crimea, reported occupied by Bolsheviks.

13.—Riots occur in chief cities of India. Soviet Government of Munich reported overthrown by garrison.

14.—Bernhard Dernburg appointed Minister of Finance in the German Cabinet, succeeding Dr. Schiffer, resigned.

15.—New Spanish Cabinet completed by Premier Maura.

16.—Lloyd-George speaking in House of Commons defends conduct of peace negotiations and declares war promises have been kept.

French Chamber votes confidence in Government on question of secrecy with regard to peace terms.

General strike begins in Bremen, Germany.

17.—French Chamber passes bill establishing eight-hour day.

German Government troops occupy Brunswick and expel Spartacist Soviet.

Unemployment riots occur in Vienna.

18.—French Chamber passes Electoral Reform bill.

XXXI. CHRONOLOGY AND NECROLOGY

JUNE

- 20.—Montenegrin National Assembly votes to unite with the Kingdom of the Serbs, Croats, and Slovenes.
Hoffmann Government resumes control of Munich.
- 21.—Egyptian Ministry under Rushdi Pasha resigns.
Starapal reported captured from Bolsheviks by Siberians.
- 23.—Mexican Foreign Office declares that Mexico declines to recognize the Monroe Doctrine or any other doctrine that impairs Mexican sovereignty.
French Senate passes bill establishing the eight-hour day.
- 24.—Orsk, southeast of Orenburg, reported captured from Bolsheviks by General Dutoff, and Mariupol, on Sea of Azov, by Kuban Cossacks.
- 28.—Glazow, east of Viatica, reported captured from Bolsheviks by Siberians.
Yokohama, Japan, severely damaged by fire.
- 29.—Italian Chamber and Senate vote confidence in Orlando Ministry on Fiume issue.
- 30.—Austen Chamberlain, British Chancellor of the Exchequer, submits to House of Commons a budget of \$7,500,000,000.

MAY

- 1.—Mexican Congress meets in special session. Hundreds injured in May Day riots in Paris.
- 2.—German Government troops enter Munich and expel Spartacists.
Spanish Parliament dissolved.
- 4.—Municipal elections in Vienna result in victory of Social Democrats.
- 5.—Parral, Jimenez, and Bustillos, Mexico, reported captured by Villistas.
- 6.—Great Britain recognizes independence of Finland and *de facto* Finnish Government.
Costa Rican revolutionists proclaim Julio Acosta Provisional President.
- 7.—United States recognizes independence of Finland and *de facto* Finnish Government.
- 8.—Senator Humbert of France acquitted by court-martial of charge of dealing with the enemy; Pierre Lenoir on same charge sentenced to death.
Villa occupies Parral, Mexico.
- 9.—British troops at Ashrafai Khel repulse Afghans invading India through Khyber Pass.
- 11.—Leipsic reported occupied by German Government troops.
- 12.—Consortium for the financing of Chinese loans formed by American, British, French, and Japanese bankers at Paris.
- 13.—Strike of employees of Suez Canal begins.
- 14.—French Senate passes bill establishing the eight-hour day.
- 15.—General strike begins at Winnipeg, Manitoba.
Samara, on the Volga, reported captured from Bolsheviks by Admiral Kolchak.
- 16.—Harry G. Hawker and Lieut. Comdr. Mackenzie Grieve leave St. John's, Newfoundland, in Sopwith biplane for attempted flight to Ireland.
- 19.—Hawker and Grieve, forced to alight on water 1,050 miles out from Newfoundland, are rescued by Danish steamer, *Mary*.
- 20.—Newfoundland Cabinet headed by W. F. Lloyd resigns.
Winnipeg firemen and postmen join general strike; strike committee establishes a press censorship.
- French Chamber adopts bill granting women suffrage for communal and departmental elections. Thousands killed by eruption of volcano Katul in Java.
- 21.—Egyptian Ministry formed under Mahomed Said Pasha.
- 22.—Gen. Felipe Angeles proclaimed Provisional President of Mexico by Villistas at Parral.
- 24.—Lieutenant Boget, French aviator, flies from Villacoublay to Kenitra, Morocco, 1,348 miles, without stop.
- 25.—Hawker and Grieve land at Thurso, Scotland.
- 26.—Polish Diet reported to have conceded autonomy to Galicia.
General strikes in sympathy with Winnipeg strikers began in Calgary and Edmonton, Alberta.
- 30.—Cuban Senate passes bill authorizing suspension of Constitution guarantees.
General strike ordered in Toronto involves small minority of workers.
Kabul and Jelalabad, Afghanistan, reported bombarded by British airplanes.

- 1.—Rhinelander Republic proclaimed in several cities in German Rhine provinces; provisional Government established at Wiesbaden.
Elections in Spain result in return of a Conservative majority in the Cortes.
- 5.—Jose Montero becomes President of Paraguay, succeeding Manuel Franco, deceased.
Levine Nissen, Bavarian communist leader, executed in Munich.
Uralsk reported captured from Bolsheviks by Siberians.
- 6.—Berlin Soviet orders 24-hour strike in protest against execution of Uissen.
- 7.—Adjutant Casale, French aviator, makes new world's altitude record of 31,152 ft.
- 8.—German Government troops eject heads of Rhinelander Republic.
- Nicaragua asks the United States to lend troops for protection against threatened invasion from Costa Rica.
- 9.—Siberian Cabinet of Admiral Kolchak reorganized.
Ufa recaptured by Bolsheviks.
Villistas occupy Guadalupe, Mexico, opposite Fabens, Tex.
Yildiz Kiosk, the Sultan's palace at Constantinople, destroyed by fire.
- 10.—Three Chinese officials of Japanese sympathies, including Tsao Yu-Lin, Minister of Communications, resign.
- 13.—Bolshevik riots in Zurich, Switzerland, suppressed with casualties of two killed and 17 injured.
- 14.—John Alcock and Arthur W. Brown leave St. John's, Newfoundland, in Vickers-Vimy bomber for Atlantic flight.
Chinese Cabinet resigns.
- 15.—Alcock and Brown land at Clifden, Ireland, after first non-stop flight across the Atlantic in 16 hr. 12 min. from Newfoundland.
- Krasnaia Gorka, opposite Kronstadt, reported occupied by Russian White Guards after mutiny of Bolshevik garrison.
- 16.—Strike of French miners begins; strike of Paris transport workers ends.
- 17.—Ten strike leaders and radical agitators arrested in Winnipeg for seditious utterances.
- 18.—President Wilson visits Brussels.
- 19.—Italian Cabinet headed by Premier Orlando resigns following adverse vote in Chamber on question relating to foreign policy.
- 20.—German Cabinet headed by Chancellor Scheidemann resigns rather than sign Peace Treaty.
French Chamber passes bill establishing eight-hour day in coal mines.
- 21.—German Cabinet formed under Bauer as Chancellor and Erzberger as Vice-Chancellor.
Winnipeg placed under martial law after riots between strikers and police.
- 22.—British Coal Commission submits four reports, the majority recommending immediate nationalization of mines.
- 23.—Italian Cabinet formed by Francesco Nitti.
Elections in Quebec result in return of Liberal Government of Sir Lomer Gouin.
- 24.—Dr. Christopher Addison appointed first Minister of Health in the British Cabinet.
- 25.—Food riots in Hamburg develop into Spartacist revolt.
- 26.—General strikes in Winnipeg, Edmonton, Victoria, and Calgary abandoned.
- 28.—New Portuguese Cabinet formed under Senor Cardoso as Premier.
- 29.—Scores killed and thousands injured by earthquakes in Tuscany.
- 30.—Cossacks reported to have captured Millerovo and 5,500 Bolshevik prisoners.

JULY

- 1.—Ekaterineslay reported captured from Bolsheviks by Cossacks; Pemu captured by Bolsheviks from Kolchak forces.
British dirigible R-34 leaves Edinburgh, Scotland, for New York.
- 2.—Canadian Senate rejects bill to continue in effect war-time prohibition of transportation of liquor into dry territory.
- 3.—Ali Kemal Bey, Turkish Minister of the Interior, resigns.
Tsaritso, on the Volga, reported captured from Bolsheviks by General Denikin's forces.
Food riots occur in several Italian cities.

4.—Peruvian Government under President Jose Pardo overthrown by Augusto B. Leguira, who assumes office of Provisional President; new Cabinet formed by Meliton F. Porras.

British House of Commons rejects Women's Emancipation bill to equalize political and legal rights of the sexes.

Argentina recognizes independence of Poland.

5.—New Czechoslovak Ministry formed of Socialist elements.

6.—British dirigible R-34 lands at Mineola, L. I., after voyage of 108 hours.

7.—Chief Secretary for Ireland issues memorandum outlawing all Sinn Fein organization from Tipperary County.

8.—British War Office announces Crimea entirely cleared of Bolsheviks.

9.—British dirigible R-34 starts from Mineola, L. I., at midnight on return voyage to Scotland.

12.—Sir Edward Carson, speaking in Belfast, denounces American encouragement of Sinn Fein propaganda.

13.—British dirigible R-34 arrives at Pulham, England, after flight of 75 hours.

14.—Italian Chamber gives Nitti Government vote of confidence.

Sir Auckland Geddes, speaking in British House of Commons, justifies increase in price of coal by six shillings a ton and urges increased output if England was to maintain her foreign trade against American competition.

Bolsheviks recapture Ekaterinburg from the Kolchak forces.

British airship NS-11 destroyed by fire in mid-air over North Sea; 12 lives lost.

16.—Spanish Cabinet under Antonio Maura resigns.

17.—Bela Kun reported deposed as head of the Hungarian Communist Government.

18.—French Government defeated in Chamber on minor issue connected with food policies.

19.—Final boundary agreement between Ecuador and Colombia signed at Cartagena, Colombia.

M. Boret, Food Minister in French Cabinet, resigns and is succeeded by Joseph J. B. E. Noulens

Chinese and Japanese soldiers clash at Chang-Chun, Manchuria.

20.—Joaquin Sanchez Toca becomes Premier of Spain and completes a Cabinet.

M. Lebrun, Minister of Liberated Regions in French Cabinet, resigns.

Budapest reported to be in the hands of extreme radical forces who have armed the proletariat.

Strike of coal miners begins in Yorkshire, England.

21.—British War Office announces retreat of General Denikin's troops flanked by Bolshevik forces landed from the Caspian Sea.

General strike ordered by the Independent Socialists occurs in Berlin.

22.—French Chamber gives vote of confidence to Clemenceau Ministry.

25.—British Government settles coal strike with new piece rates

Kaarlo J. Stahlberg elected President of Finland.

26.—Otto Bauer, Austrian Foreign Minister, resigns; Karl Renner, Chancellor, assumes the portfolio.

28.—Kamishin captured from Bolsheviks by forces of General Denikin.

31.—German National Assembly approves new German constitution.

Strike of policemen begins in London, Liverpool, and other English cities.

AUGUST

1.—Bela Kun, dictator of the Hungarian Soviet Government, resigns; Socialist Government formed under Jules Peidl as Premier.

Poltava reported captured from Bolsheviks by General Denikin.

2.—Military called out in Liverpool to suppress riots and looting as a result of police strike.

3.—Serbo-Croatian Ministry resigns.

Departments of Gracias, Comayagua, and Choluteca, Salvador, reported in revolt against Government of President Bertrand.

5.—Prince of Wales sails from Portsmouth, England, for Canada on cruiser *Rownan*.

6.—Archduke Joseph overthrows Hungarian Government and appoints new Ministry with Stephen Friederic as Premier.

7.—Antonio Jose d'Almeida elected President of Portugal.

8.—British House of Commons adopts bill establishing a seven-hour day for miners.

Peace concluded between Afghans and Government of India.

Flood riots occur at Chemnitz, Saxony; 50 killed. King Ferdinand of Rumania arrives in Budapest.

9.—Treaty between Great Britain and Persia establishing British protectorate signed at Teheran.

Eight killed by explosion in grain elevator at Port Colborne, Ontario.

10.—President Tinoco of Costa Rica abandons his office to Gen. Juan B. Quiros and leaves the country.

12.—Archduke Joseph of Hungary affirms his fidelity to the republic and denies monarchical ambitions.

Prince of Wales arrives at St. John's, Newfoundland.

13.—British House of Commons adopts amendment to Profiteering bill empowering Board of Trade to fix wholesale and retail prices.

14.—New Hungarian Cabinet formed under M. Lovasky.

British Government announces suppression of all Sinn Fein societies in Clare County, Ireland.

15.—Hungarian Cabinet of non-Socialists formed under Stephen Friedrich as Premier.

Suez Canal blocked by sinking of Italian cruiser *Basilicata* near Tewfik after explosion.

Prince of Wales lands at St. John, N. B.

16.—Carranza orders British diplomatic agent in charge of archives to leave Mexico.

Serbian Cabinet headed by Liouba Davidovitch created.

18.—Finnish Cabinet formed by Premier Venola with President Stahlberg as Minister of War.

19.—Japanese Government announces abolition of military administration in Korea and introduction of civil rule.

20.—Strike of Yorkshire, England, coal miners settled.

Ilets, Siberia, reported captured by Bolsheviks.

21.—Friedrich Ebert sworn in as President of the German Republic at Weimar.

German National Assembly committee to investigate responsibility for the war appointed.

German National Assembly disbands.

Kazatin and Korenovoe, southwest Russia, reported evacuated by Bolsheviks.

22.—Archduke Joseph withdraws from Hungarian Government under pressure from Peace Conference; Cabinet headed by Premier Friedrich resigns.

Bulgarian elections result in defeat of Premier Radoslaroff by Left and Agrarian parties.

25.—Elections in Peru carried by candidates of President Leguia pledged to constitutional reform.

London-Paris aerial transportation service inaugurated.

28.—New Hungarian Cabinet formed under Premier Friedrich.

Gen. Louis Botha, Premier of South Africa, dies at Pretoria.

29.—United States recognizes *de facto* Government of Peru headed by President Leguia.

Saharanata, Siberia, and Kupiansk and Pavlovsk, southwestern Russia, reported captured by Bolsheviks.

30.—Carranza issues decree providing for arrangement of conventions with foreign powers for mixed commissions to handle claims against Mexican Government.

31.—Gen. Jan Christian Smuts becomes Premier of South Africa and forms a Cabinet.

SEPTEMBER

1.—President Carranza opens Mexican Congress with message listing alleged outrages against Mexicans in the United States.

Canadian Parliament meets in special session to act on Peace Treaty.

Admiral Kolchak begins counter-offensive against Bolsheviks.

2.—New Zealand Parliament ratifies Peace Treaty with Germany.

Unsuccessful attempt to assassinate Baron Salto, newly appointed Japanese Governor-General of Korea, made at Seoul.

3.—Leaders of Mexican factions opposing Carranza Government appeal to President and people of the United States for a hearing.

4.—Italian Chamber passes bill granting the suffrage to women.

Kiev reported occupied by forces of General Denikin.

XXXI. CHRONOLOGY AND NECROLOGY

7.—Troops on church parade at Fermoy, Ireland, attacked by Sinn Feiners.
Tobolsk, Siberia, reported captured by Bolsheviks.

8.—President Bertrand of Honduras surrenders his office to a council of ministers under pressure from revolutionists under Gen. Lopez Gutierrez.

9.—British Trades Union Congress at Glasgow demands admission of Germany to League of Nations and revision of harsh peace terms.

Petropavlovsk reported captured by Bolsheviks.

10.—British Trades Union Congress rejects Government's plan for management of coal mines and demands nationalization.

11.—American marines landed to preserve order at Puerto Cortez, Honduras.

12.—Irish Sinn Fein Parliament at Dublin suppressed and Sinn Fein headquarters throughout the country raided.

Arthur Henderson elected to British House of Commons in by-election at Widnes.

Serbian Cabinet headed by Premier Liouba Davidovitch resigns.

Bolshevik report capture of Kolchak's southern army in the region of Aktinbinsk and Oesk.

13.—Rumanian Cabinet headed by M. Bratiano resigns.

Chilean Cabinet resigns.

14.—Francisco B. G. appointed Provisional President of Honduras.

15.—Tommaso Tittani, Italian Foreign Minister, resigns, because of Fiume incident.

16.—Royal decree promulgated in Spain establishing eight-hour working day.

Chilean Cabinet reorganized.

Igov and Korotkiak reported captured from Bolsheviks by forces of General Denikin.

24.—British Railwaymen's Union rejects wage scale offered by Government and threaten strike on Sept. 26 unless new offer is made immediately.

Tomsk, Siberia, 500 miles east of Omsk, reported occupied by Bolshevik insurgents; Poles report junction with General Denikin's forces in southwest Russia.

25.—Thirteen Bolshevik commissaries killed by bomb at meeting of Moscow Soviet.

King Victor of Italy summons Crown Council to consider Fiume situation.

27.—Strike of railway workers begins in England; War Office suspends leaves of absence and further demobilization of troops; Food Controller inaugurates limited rationing.

Italian Chamber votes confidence in Premier Nitti after debate on Fiume.

Turkish Nationalist Government formed by Mustapha Kemal at Konieh, Asia Minor.

28.—Plebiscite in Luxemburg results in majority for retention of the Grand Duchess Charlotte and for economic alliance with France.

29.—Italian Parliament dissolved; elections fixed for Nov. 16.

30.—New Rumanian Cabinet formed by General Voltolau as Premier.

Premier Clemenceau receives vote of confidence in French Chamber on issue of further disarmament of Germany.

OCTOBER

2.—New Serbian Cabinet formed under Stoyan Protitch as Premier.

3.—Striking British railway workers reject Government offers of compromise or truce; Government issues appeal to citizens to form citizen guards for maintenance of order.

4.—German Cabinet reorganized to admit Democrats.

5.—Antonio Jose d'Almeida inaugurated President of Portugal.

Turkish Cabinet headed by Damad Ferid Pasha resigns.

6.—British railway strike settled by compromise granting minimum wage and guarantee of wages at present level until Sept. 30, 1920.

Turkish Cabinet formed under Ali Riza Pasha as Grand Vizier.

Norway in special election adopts prohibition of strong intoxicants.

7.—Hostilities reported resumed between Northern and Southern Chinese Governments.

8.—Coalition Cabinet formed in Ukraine under M. Maseppa as Premier.

12.—Augusto Leguia inaugurated President of Peru.

13.—Kromy reported captured by Denikin's forces from Bolsheviks and Chernigoff from Ukrainians.

Broussa and Adrianople reported adhered to Turkish Nationalist movement.

14.—Bulgarian Cabinet completed under agrarian leader, M. Stambulowsky, as Premier.

15.—French Chamber sustains Clemenceau ministry in vote of confidence on order of elections.

Orel reported captured by Denikin's forces with other severe defeats of Bolsheviks; Kiev recaptured by Bolsheviks.

17.—Field Marshal Viscount Allenby appointed British High Commissioner for Egypt and the Soudan.

Austrian Cabinet resigns after acceptance of Peace Treaty and new coalition ministry is formed.

19.—French Parliament dissolved.

20.—Elections in Ontario result in defeat of Conservative Government and of movement for repeal of prohibition.

22.—British Parliament opens.

23.—Arthur J. Balfour, Foreign Secretary, and Earl Curzon, Lord President of the Council, exchange portfolios in the British Cabinet.

British Government defeated in House of Commons vote on amendment to Alien bill.

Belgian Parliament dissolved.

25.—Yelez, 230 miles southeast of Moscow, captured from Bolsheviks by Cossacks.

26.—Gen. Rafael Lopez Gutierrez elected President of Honduras.

Congress of Spanish employers at Barcelona declares lockout of workmen throughout Spain effective Nov. 4.

27.—British House of Commons adopts amendment to bill for removal of sex disqualifications permitting women to sit and vote in House of Lords.

British War Cabinet announced transformed and enlarged into Peace Cabinet.

28.—British House of Commons votes confidence in Government on question of renewing Defense of the Realm Act.

30.—British House of Commons votes confidence in Government on its financial policy.

Orel reported recaptured from Bolsheviks by Cossacks.

31.—Werner Horn sentenced to 10 years imprisonment at Frederikton, N. B., for attempt to destroy St. Croix bridge on Feb. 2, 1915.

NOVEMBER

1.—Municipal elections in Great Britain result in many victories for Labor Party.

2.—Last of Zapata's forces surrender to Mexican Government troops.

Kromy reported recaptured by Bolsheviks from Cossacks.

3.—General lockout begun by employers at Barcelona, Spain.

Cardinal Mercier sails from Quebec.

4.—Australian Parliament dissolved.

Bulgarian Government arrests principal members of Radoslavoff Cabinet still in Bulgaria.

6.—General election in Newfoundland results in return of opposition headed by Richard A. Squires.

Andre Tardieu appointed Minister of Blockade in French Cabinet, succeeding Albert Lebrun, resigned.

Ishim, Siberia, reported captured by Bolsheviks.

10.—Fastoff near Kiev, reported captured by Bolsheviks.

11.—British House of Lords rejects clause of bill removing disqualifications of women to permit them to sit in House of Lords.

Gen. John E. B. Seely resigns as British Air Minister.

King Albert and Queen Elizabeth of Belgium arrive at Brest.

12.—Lockout in Barcelona, Spain, ended by agreement.

Ishim and Tukalinski, Siberia, reported captured by Bolsheviks.

15.—Bolsheviks occupy Omsk.

Viscountess Astor elected to British House of Commons from Plymouth.

16.—French general election results in victory of the *Bloc National* composed of non-Socialist parties; Belgian election results in victory of Socialists.

Italian election results in return of ministerialists, with heavy Socialist gains.

17.—Richard Squires, Premier of Newfoundland, completes a Cabinet.

Commercial treaty between Japan and Paraguay signed at Asuncion.

Revolutionary movement in Vladivostok suppressed by Government troops.

19.—British Government announces a constitution for Egypt and local self-government for Malta.

XXXI. CHRONOLOGY AND NECROLOGY

Hungarian Cabinet deposes Friedrich as Premier and designates Karl Huszar.

Gen. Felipe Angeles, Mexican rebel leader, captured by Government troops at Parral.

23.—Coalition Cabinet formed in Hungary under Karl Huszar as Premier.

Rumanian Parliament opened.

24.—Tommaso Tittani, Italian Foreign Minister, resigns and is succeeded by Viterio Scialoja. R-public of Austria reported recognized by Vatican.

25.—Gen. Felipe Angeles condemned to death by Mexican Government court-martial at Chihuahua.

Edward Prince of Wales sails from Halifax.

26.—British Government proclaims prohibition and suppression of Sinn Fein and similar organizations throughout Ireland.

27.—Belgian Cabinet reorganized under M. Delacroix as Premier.

Leon Berard appointed Minister of Instruction and Louis Dubois, Minister of Commerce, in French Cabinet.

Dubovka, Southwest Russia, and Tatarskaya, Siberia, reported captured by Bolsheviks.

29.—Paul Jourdain appointed Minister of Labor in French Cabinet.

30.—New Siberian Cabinet completed under Victor Pepelliaeff as Premier.

DECEMBER

1.—Italian Parliament opened; Socialists leave Chamber before King's speech.

Viscountess Astor takes her seat in the British House of Commons.

Spanish Cabinet resigns.

Bolsheviks capture Kainsk, 160 miles east of Omsk.

2.—Tommaso Tittani appointed President of the Italian Senate and Premier Orlando elected President of the Chamber.

Barabinsk, Siberia, and entire Crimea reported occupied by Bolsheviks.

3.—French Parliament opens.

4.—Julio Acosta elected President of Costa Rica. Spanish Cabinet resigns.

10.—Mexican Senate passes bill amending provisions of constitution on oil lands.

Cunard liner *Carmania* collides with steamer *Maryland* off Sable Island.

Capt. Ross Smith arrives at Port Darwin, Australia after 11,500-mile airplane flight from England.

12.—New Spanish Cabinet formed with Manuel A. Salazar as Premier.

Enver Pasha reported crowned king of Kurdistan. Kharkov and Vaiki, southern Russia, reported captured by Bolsheviks.

13.—General election in Australia results in return of Nationalist Government of Premier Hughes.

Italian Chamber accepts speech from the Throne after rejection of amendment to recognize Russian Soviet Government.

Novo Nikolaevsk, eastern Siberia, captured by Bolsheviks; Poltava, southern Russia, reported captured.

15.—New Cabinet formed in Poland under W. Skulski as Premier.

Ust Kamenogorsk, Russian Turkestan, captured by Bolsheviks.

16.—Siberian troops begin evacuation of Tomsk.

17.—British Court of King's Bench declares invalid Government's prohibition of importation of certain goods.

General election in New Zealand results in defeat of Liberals.

Kiev and Kupiansk reported captured by Bolsheviks.

18.—British steamer *Manaman* founders in mid-Atlantic with loss of 39 lives.

19.—Viscount French, Lord Lieutenant of Ireland attacked from ambush with rifles and bombs in Dublin.

British heavily engaged with Afghans on northern frontier of India.

20.—Canadian Government proclaims abrogation of War Measures Act from Jan. 1 and orders release of all men convicted of military offenses.

Bolstaia, southwest of Tomsk, reported captured by Bolsheviks.

21.—Plebiscite in Fiume results in large majority in favor of Italian Government's proposals relative to future occupation of the city.

Premier Nitti announces to Italian Chamber Government's intention to introduce constitutional amendment transferring war power from Crown to Parliament.

22.—Alliance between Latvia and Lithuania reported concluded at Kovno.

Lloyd-George submits to British House of Commons Government's plan for Irish home rule, involving creation of two parliaments.

George Clement Tryon appointed Air Minister in British Cabinet.

23.—King George proclaims assent to act giving India a larger measure of self-government.

British Parliament prorogued.

French Chamber votes confidence in Government after exposition of programme by Clemenceau.

24.—Admiral Kolchak resigns command of All-Russian forces and appoints General Semenov commander-in-chief.

25.—Premier Hara of Japan declares Japan has no territorial ambitions in Siberia but will oppose extension of Bolshevism in Eastern Siberia.

26.—Japanese Parliament opened.

28.—Attempted raid on Vice-Regal Lodge in Dublin repulsed by guards.

29.—Belgian steamer *Antonvan Driel* wrecked at St. Shott's, Newfoundland, with loss of 26 lives.

CHRONOLOGY OF THE EUROPEAN WAR

JANUARY

3.—Herbert C. Hoover appointed director-general of an international organization to administer relief in liberated countries.

4.—Serbian minister to France declares Serbia will go to war if Peace Conference confirms secret treaty giving east coast of Adriatic to Italy.

Bolsheviks occupy Riga, evacuated by the Germans.

5.—British Government proposes admission of representatives of Russian factions, including Bolsheviks, to Peace Conference.

8.—Bolsheviks capture Vilna from the Poles.

9.—French Government announces its delegates to the Peace Conference as Premier Clemenceau, Stephen Pichon, Louis L. Klotz, Andre Tardieu, and Jules Cambon.

11.—French Foreign Office announces rejection of British proposal that Russian representatives be invited to Peace Conference.

Germans surrender battleship *Baden* at Scapa Flow.

12.—Supreme War Council of the Allies meets in Paris; Supreme Council of the Peace Conference, composed of Wilson, Lloyd-George, Clemenceau, and Orlando, holds its first formal meeting.

Wesenberg, east of Reval, reported captured from Bolsheviks by Estonians.

13.—Germans evacuate Mitau.

Medine occupied by King Hussein of the Hedjaz.

14.—Ukraine reported to have sent ultimatum to Rumania demanding evacuation of Bukovina.

State Department announces agreement for joint Allied control of Chinese Eastern and Trans-Siberian Railroads.

15.—Agreement extending armistice with Germany one month from Jan. 16 concluded at Treves.

Marshal Foch declares in interview with American correspondents at Treves that France must hold left bank of the Rhine.

Allied conferees in Paris decide to reveal proceedings of Peace Conference only through official announcements.

16.—Polish Government reported to have provisionally assumed administration of Lithuania to protect it from Bolsheviks.

Gen. JAMES JANUM announced as in supreme command of Allied forces in Siberia.

17.—Supreme War Council modifies rule concerning press representation at sessions of the Peace Conference.

18.—Peace Conference opened at Paris; Premier Georges Clemenceau elected permanent chairman.

Mitau reported occupied by Bolsheviks.

Bolshevist Government asks for conference with U. S. Government to discuss withdrawal of American troops from Russia.

19.—Peace Conference issues its regulations.

20.—President Wilson, guest of French Senate, says the world must stand with France against conquest.

Narva reported captured by Estonians from Bolsheviks.

22.—Supreme Council of Peace Conference, at urging of President Wilson, resolves to invite all Russian factions to conference with Allies at Princes' Island, Sea of Marmora, on Feb. 15, all military operations to be suspended meanwhile.

23.—M. Sazonoff, former Russian Foreign Minister, representing Governments of Yekaterinodar and Omsk, refuses to enter a conference with Bolsheviks.

24.—Supreme Council of Peace Conference issues warning that taking of territory by force will prejudice claims of aggressors.

Czecho-Slovaks capture Moravika and Oskava, Moravia, from Poles.

25.—Peace Conference in plenary session adopts resolution moved by President Wilson to create a League of Nations as an integral part of treaty of peace; commission to draft a constitution appointed with President Wilson as chairman; Conference authorized appointment of other commissions on responsibility for the war, reparations, international labor legislation, and international control of ports, waterways and harbors.

Shenkursk, Province of Archangel, evacuated by Allies and occupied by Bolsheviks.

26.—Peace Conference commissions authorized in session of Jan. 25 appointed.

President Wilson visits Rheims.

Oderberg, Silesia, reported captured by Czechs from Poles.

27.—Supreme Council of Peace Conference creates commissions on finances and maritime laws.

Allies in North Russia evacuate Shegovarsk.

28.—Czecho-Slovaks capture Karvin mining region from Poles.

30.—Allies in North Russia retreat 20 miles from Taresevo to Srdmakrenga.

Cessation of hostilities between Poles and Czecho-Slovaks over Tescheu coal fields reported arranged by Allied commission.

French occupy Kehl, across the Rhine from Strasbourg.

FEBRUARY

3.—Peace Conference Commission on League of Nations hold its first meeting under chairmanship of President Wilson.

Windau, Courland, reported captured by Bolsheviks.

4.—Vilkomir, Lithuania, reported captured by Bolsheviks.

5.—Russian Bolshevik Government accepts invitation to attend conference of all Russian factions with Allies at Princes' Island.

Zhitomir, Volhynia, reported captured by Bolsheviks.

6.—Supreme Council of Peace Conference hears claims of Arabs presented by Emir Feisal.

7.—Supreme War Council meets at Paris to decide terms for extension of the armistice.

Baron Makino, Japanese delegate to Peace Conference, issues declaration affirming Japan's intention to restore Kiao-Chau to China.

8.—Supreme War Council resolves to create a Supreme Economic Council to consider economic questions arising under the armistice.

10.—Kiev reported captured from Bolsheviks by Ukrainians and Poniievsk by the Lithuanians.

11.—Jugoslav peace delegation invokes President Wilson's arbitration in dispute with Italy over eastern coast of Adriatic.

Japanese delegation to Peace Conference issue statement affirming Japan's intention to hold the Marshall and Caroline Islands and to insist on fulfillment of the treaty with China of September, 1918, with regard to Shantung.

12.—Supreme War Council adjourns after agreement on new armistice terms.

State Department announces acceptance by United States of Japan's proposal for a plan to restore railway traffic in Siberia.

13.—Peace Conference Commission on League of Nations adopts draft of Covenant.

A. Bonar Law announces in British House of Commons that British delegates to Peace Conference have been instructed to claim an indemnity including damages and cost of the war.

14.—President Wilson submits to plenary session of Peace Conference draft of Covenant of the League of Nations.

15.—Armistice renewed at Treves on new terms which require Germany to cease offensive against Poles and carry out previous armistice terms.

Supreme Economic Council lifts blockade of Dardanelles and authorizes resumption of trade relations with Bulgaria and Turkey.

16.—Agreement rep'ted reached between Poland and Lithuania for withdrawal of German troops from Lithuania and its occupation by Poles.

Ukrainians resume hostilities against Poles, occupying oil fields near Lemberg, Galicia.

17.—Germany suspends hostilities against Poland.

18.—Italian peace delegation declines Yugoslav proposal for arbitration of claims to eastern coast of Adriatic.

19.—Allies in North Russia advance 35 miles along Murmansk railway.

20.—Jugoslav commander at Laibach expels Italian officers supervising movement of food trains.

American troops reach Berlin for distribution as guards among camps of Russian prisoners.

21.—Supreme Council of Allies resolves to recognize Polish Government headed by M. Paderewski.

Germans renew hostilities against Poles in Posen. Italy closes Jugoslavia frontier.

24.—Hostilities between Poles and Ukrainians at Lemberg suspended.

25.—Oesel Island reported occupied by Bolsheviks.

26.—Libau and Windau, Courland, reported recaptured from Bolsheviks, the latter by Germans.

MARCH

1.—Ukrainians denounce truce with Poles in Galicia and next day resume attack on Lemberg.

Saratov and Volsk reported captured from Bolsheviks by Cossacks under General Krasnoff.

2.—Bolsheviks renew offensive in North Russia and capture Vevsievskaya.

6.—Negotiations with Germans at Spa on food relief terminated by Allied delegates on Germans' refusal to surrender merchant ships without guarantee of food supplies.

7.—Reports of Commission on Belgian Affairs submitted to Supreme Council of Peace Conference recommends revision of treaties of 1839.

9.—Supreme Council of Peace Conference revises terms offered to Germany for supply of food stuffs in exchange for merchant tonnage.

10.—Supreme War Council of Allies decides to limit German Army to 100,000 men.

Frauenberg, northeast of Libau, captured from Bolsheviks by Letts.

13.—President Wilson arrives at Brest.

14.—Agreement concluded at Brussels for provisioning of Germany in exchange for use of German shipping.

Military convention between China and Japan of September, 1918, published in Peking and Tokio.

17.—Przemysl, Galicia, reported entered by Ukrainians.

Kandau and Zabeln reported captured from Bolsheviks by Letts.

19.—Peace Conference in note to Hungarian Government delimits neutral zone between Hungary and Rumania.

Mitau reported captured from Bolsheviks by Letts.

20.—Lemberg captured from Poles by Ukrainians.

Pinsk reported captured from Bolsheviks by Poles and Dvinsk by Lithuanians.

21.—Italian delegation notifies Peace Conference that it will withdraw unless Fiume is assigned to Italy.

Sarny, Dombrovltsa, and Stolin reported captured from Bolsheviks by Ukrainians.

23.—Siberian and North Russian forces form junction at Ust. Kezva.

24.—Council of Four, composed of President Wilson, and Premiers Lloyd-George of Great Britain, Clemenceau of France and Orlando of Italy, supersedes Supreme Council of ten members, two each from these powers and Japan, in direction of work of Peace Conference.

25.—American engineers arrive at Murmansk.

26.—Allies in note to German Government demand passage through Danzig of Polish troops in France and permission for their march into Poland to maintain order.

Italy notifies Peace Conference of lifting of blockade in the Adriatic.

Grodno and Pinsk reported captured from Bolsheviks by Poles.

Raab, Hungary, reported occupied by Czecho-Slovaks.

27.—Hungarian Bolshevik Government reported to have declared war on Serbia and surrounding countries.

Pressburg, Hungary, reported occupied by Italians.

Shlotsk, southwest of Riga, reported captured from Bolsheviks by Letts.

28.—Rumania and Czecho-Slovakia reported to have begun military operations against new Hungarian Government.

Detachment of American railroad troops arrives on Murman Coast.

29.—Kemmer and Kalnzem, southwest of Riga, reported captured from Bolsheviks by Letts.

31.—President Wilson urges Supreme Council of Peace Conference to expedite Treaty of Peace.

APRIL

1.—First shipment of foodstuffs for Germany under agreement of Feb. 8 leaves Rotterdam.

2.—Financial Commission of Peace Conference opens conference with German financial delegates at Senlis.

Council of Four dispatches General Smuts to Hungary for investigation of armistice problems.

4.—Agreement concluded with Germans at Spa for repatriation of Polish troops in France through Danzig and by other routes across Germany.

5.—Hungarian Government rejects proposals of Peace Conference presented by General Smuts and makes counter demands.

Galician Soviet army joins Ukrainians.

6.—President Wilson orders the *George Washington* to Europe.

Estonians cross Narova south of Narva and capture seven villages.

7.—British Grand Fleet officially dispersed.

Odessa reported evacuated by Allies and occupied by Ukrainian Soviet troops.

8.—Three hundred and seventy members of British House of Commons telegraph Lloyd-George demand that Germany be made to pay full cost of the war.

American engineer troops arrive at Murmansk with Brig.-Gen. W. P. Richardson, American commander in North Russia.

9.—Council of Four sign document indicting former Kaiser and directing his trial for violation of international morality and sanctity of treaties.

10.—French Senators sign demand that Germany be made to pay full cost of the war.

Tribzond reported occupied by British.

11.—Peace Conference in fourth plenary session receives report of Commission on International Labor Legislation.

Peace Conference Commission on League of Nations adopts amendment to Covenant recognizing Monroe Doctrine but rejects racial-equality amendment proposed by Japan.

12.—Three hundred French Deputies sign demand that Germany be made to pay full cost of the war.

15.—Council of Four invites German Government to send peace delegates to Versailles on April 25.

First contingent of Polish troops from France starts across Germany.

16.—Allies reach agreement to send food to Russia under neutral control.

Germans under von der Goltz occupy Libau and overthrow Lettish Provisional Government.

17.—Rumanian Government announces orders to troops to occupy Transylvania at request of inhabitants.

Andriof Nansen, head of neutral commission to feed Russia, proposes to the Bolshevik Government cessation of hostilities as a condition of provisioning.

Volochysk, Galicia, reported captured by Bolsheviks.

Allies in North Russia capture Vojnosalmi.

18.—Allies in North Russia occupy Bolshie Ojerk.

20.—Bolshevik army operating about Homel reported surrendered to Ukrainians.

22.—Italian delegates withdraw from Peace Conference in protest against rejection of their demand for Fiume.

Supreme Economic Council announces abolition of alcohol, licensing, and rationing systems as applied to neutrals.

Vilna reported captured from Bolsheviks by Poles.

23.—President Wilson issues statement on conflicting claims of Italy and Yugoslavia to Fiume, and declares he will not yield his principles which denied Italian demand.

Bolsheviks reported driven out of Kiev by Ukrainian Nationalist troops.

24.—Premier Orlando of Italy issues statement protesting against President Wilson's public declaration on Fiume controversy; Orlando and two other delegates leave Paris for Rome.

25.—First of German peace delegation arrive at Versailles.

Komorn and Raab, Hungary, reported occupied by Czecho-Slovaks.

26.—Two remaining Italian peace delegates leave Paris.

Lolinspolts, on the White Sea, captured from Bolsheviks by Finns.

27.—Serbians occupy Mako and Nagy Lak, Hungary; Rumanians capture Bekes-Csaba.

28.—Peace Conference in plenary session adopts revised draft of Covenant of the League of Nations. Olonetz, 110 miles northeast of Petrograd, reported captured from Bolsheviks by Finns and a National Assembly formed.

29.—German peace plenipotentiaries arrive at Versailles.

30.—Council of Three decides to transfer German rights in Shantung to Japan under promise of ultimate restoration to China.

MAY

1.—German peace plenipotentiaries present their credentials to Peace Conference.

Jugoslavs cross Drave River and cut communications between Italy and Austria.

Italy restores postal relations with Germany.

2.—Rumanians in Hungary cross Theiss River at Szolnok and Tisza-Polgar.

4.—Council of Three invite Italian Government to resume participation in the Peace Conference.

5.—Organization Committee of League of Nations in first meeting elects Stephen Pichon, French Foreign Minister, Chairman of the provisional organization.

6.—Council of Three agrees upon disposition of former German colonies under mandates of the League of Nations.

Peace Conference meets in secret plenary session to complete treaty.

Chinese Cabinet decides to instruct Chinese peace delegates not to sign a treaty assigning German rights in Shantung to Japan.

7.—Peace Treaty delivered to German delegation at Versailles; Italian delegates rejoin Peace Conference; proposed pledge of the United States and Great Britain to come to the aid of France in case of unprovoked attack by Germany published.

10.—German peace delegation addresses note to Peace Conference asking for immediate and unconditional repatriation of prisoners of war, and submits to Council of Four a draft of an international agreement on labor law.

President Wilson, speaking before French Academy of Moral and Political Sciences, declares America is ready whenever the cause of liberty is in peril.

11.—President Ebert of Germany denounces Peace Treaty in National Assembly as a "monstrous document."

Vorarlberg, former Austrian crownland, votes in plebiscite for union with Switzerland.

Bolshevik gumbat sunk in engagement with British flotilla on the Dvina.

12.—Landesberg and Giesberts, German peace plenipotentiaries, leave Paris for Berlin; German delegation submit to the Council of Four a plan for a League of Nations.

Chancellor Scheidemann declares in German National Assembly that peace terms are unacceptable.

Korean Provisional Government petitions Peace Conference for independence.

13.—German peace delegation submits protest against bargaining in German territories.

Bolshevik Government rejects proposal for cessation of hostilities as a condition of the provisioning of Russia by neutrals.

14.—Council of Four reply to German notes on prisoners of war and labor subjects; Germans deliver three notes dealing with economic, territorial, and reparations questions.

Austrian peace delegation headed by Chancellor Karl Renner arrives at St. German-en-Laye.

Allied naval forces and Greek troops occupy Smyrna.

15.—Body of Edith Cavell buried at Norwich, England.

16.—German peace delegation submits counter-proposals on disposal of Sarre basin.

XXXI. CHRONOLOGY AND NECROLOGY

17.—Count von Brockdorff-Rantzau, head of the German peace delegation, leaves Versailles for Spa; German delegation submits a note on the Sarre coal district.

Allies in North Russia capture Povenetz.

18.—British warships rout Bolshevik fleet in Gulf of Finland, sinking one cruiser.

Bolshevist troops reported to have crossed the Dniester into Bessarabia and routed the Rumanians near Tiraspol.

19.—Austrian peace delegation present their credentials.

Count von Brockdorff-Rantzau and Landsberg and Giesberts of the German delegation return to Versailles.

20.—Clemenceau in reply to German note declares that it is now too late for Germany to deny responsibility for the war.

German Cabinet issues statement declining to sign the peace terms.

Poles in Galicia reported to have captured Drohobycz, Boryslaw and Mikolajow, and to have crossed Dniester near Rozwadow.

Allies in North Russia capture Lumbushki, Ostreche and Kolodari, turning the Bolshevik positions at the head of Lake Onega.

21.—Council of Four extends to May 29 time for submission of German delegation's observations on peace treaty.

22.—Allies deny German demand for repatriation of German prisoners of war guilty of crimes and penal offenses; Allies also reply to German notes on economic effects of the peace terms and the League of Nations.

German troops under von der Goltz occupy Riga. Estonians report capture of Yamburg and Koprje, south of Petrograd.

23.—Allies reply to German protest on reparation terms.

24.—Clemenceau rejects German notes of 13 and 16 with one minor concession with regard to payment of reparation for French coal mines.

German peace delegation return to Paris from conference with Government mission at Spa.

Lutsk reported captured by Poles from Ukrainians.

25.—Estonians capture Pskov from Bolsheviks and report capture of Peterhof, 19 miles west of Petrograd.

26.—Council of Four ratifies decision of Economic Council to maintain blockade of Germany until free Government is established.

Council of Five addresses offer of support to Admiral Kolchak on certain condition.

Peace Conference appoints new Commission on Reparations.

Italian troops reported landed at Sokia, Asia Minor, 50 miles south of Smyrna.

27.—British and American marines reported landed at Danzig.

Italian troops reported withdrawn from Sokia, Asia Minor.

28.—Jugoslavs begin hostilities against Austrians in Corinthia.

29.—German delegation submits counter-proposals to terms of peace laid down by Peace Conference. Greek troops landed at Avial, Asia Minor.

30.—Rovno reported captured from Poles by Bolsheviks.

31.—Council of Four replies to German note of May 22 regarding international labor legislation. Germans invade Poland at Rygrad.

Stanislau, Galicia, reported occupied by Poles.

JUNE

2.—Peace Treaty delivered to Austrian delegation at St. Germain.

Polish forces in Galicia reported injunction with Rumanian forces in Bukowina.

3.—German Armistice Commission protests to Marshal Foch against French support of the movement to create a Rhineland Republic.

Contingent of 1,600 American troops embark at Archangel for home.

4.—British submarine sunk by Bolshevik destroyers in Gulf of Finland.

Proskurov and Berdicheff reported captured from Bolsheviks by Ukrainians.

5.—Admiral Kolchak in reply to Allies' note defines his aims and intentions.

Kronstadt bombarded by Finnish batteries at Fort Ino.

7.—President Seitz of Austria, opening National Assembly, denounces Treaty as a peace of hate that will mean starvation to Austria.

8.—Kreitzburg and Jakebstadt reported captured by Estonians.

9.—Peace Conference notifies Hungarian Government that attacks on Czecho-Slovaks must cease.

Hostilities reported in progress between Estonians and Germans east of Riga.

12.—Council of Four accept Admiral Kolchak's reply to their offer of support.

14.—Council of Five completes revision of German Peace Treaty.

16.—Peace Conference delivers to German delegation reply to counterproposals and revised copy of Peace Treaty; Count von Brockdorff-Rantzau and other delegates leave Versailles for Weimar after hostile demonstration by Versailles mob.

17.—Supreme Council of the Peace Conference orders ultimatum to General von der Goltz forbidding further operations against anti-Bolshevist Letts.

Council of Ten receives Turkish peace delegation in audience in Paris.

18.—Bolshevist cruiser *Slava* sunk by British warships in the Gulf of Finland and cruiser *Oleg* by British submarine in the Baltic.

20.—Marshal Foch in note to German Armistice Commission demands immediate evacuation of Russian territory by German troops.

21.—German warships interned at Scapa Flow, except a few vessels beached, sunk by their crews.

French naval service ordered reduced to peace basis.

22.—German National Assembly resolves to sign the Peace Treaty with certain reservations communicated to Peace Conference; Council of Five rejects reservations and insists upon unconditional acceptance.

23.—German National Assembly resolves to sign Peace Treaty unconditionally; Government notifies Peace Conference after denial of request for 48-hour extension of time.

German soldiers in Berlin burn French flags captured in Franco-Prussian War and Great War required to be returned under Peace Treaty.

Armistice reported concluded between Poles and Ukrainians.

24.—Council of Four grants Belgium priority in German reparation fund up to \$500,000,000.

25.—Supreme Council notifies Germany that necessary reparation will be exacted for sinking of the German fleet.

Supreme Council in note to Turkish peace delegation rejects plea for maintenance of the empire as it was before the war.

Theobald von Bethmann-Hollweg, former German Chancellor, in communication to Premier Clemenceau assumes responsibility for acts of Germany during his term of office and asks to be tried in place of the former Kaiser.

Field Marshal von Hindenburg resigns as Commander-in-Chief of the German army.

27.—German peace plenipotentiaries Muller and Bell arrive at Versailles.

Odessa and Kherson reported recaptured from Bolsheviks by Ukrainians.

28.—Peace Treaty with Germany signed in Hall of Mirrors at Versailles; Chinese delegates refuse to sign and General Smuts files protest with his signature; President Wilson leaves Paris.

29.—New Italian peace delegation headed by Foreign Minister Tittoni arrives at Paris.

30.—Treaty of Allies with Poland published in Paris.

Premier Clemenceau presents German Peace Treaty to French Chamber.

JULY

1.—General von der Goltz reported to have established martial law at Riga and proclaimed himself Governor-General.

2.—Poles reported to have captured Brody, Pluchow, Pomorzany, and Brzezany in severe defeat of Ukrainians.

3.—Lloyd-George declares in House of Commons that former Kaiser will be brought to trial in London.

Odessa reported captured from Bolsheviks by Ukrainians.

4.—Argentina ratifies Covenant of the League of Nations.

5.—Prince Eitel Friedrich of Prussia, second son of the former Kaiser, telegraphs King George offer of himself and four brothers in place of his father in case the latter is extradited for trial.

6.—Italian and French troops in Fiume clash with several French casualties.

7.—Council of Five instructs American, British, French and Italian military attaches at Helsingfors to support the Finnish Government in case of co-operation with Kolchak in attack on Petrograd.

8.—Major-Gen. Henry T. Allen assumes command of the American forces in Germany, succeeding Major-Gen. E. F. McGlachlin.

French Chamber of Deputies rejects bill to raise the state of siege and to abolish the censorship.

Capt. Charles Fryatt's body interred at Dover after memorial service in London.

9.—German National Assembly ratifies Peace Treaty.

10.—Poles reported to have captured Luninetz, east of Pinsk, from the Bolsheviks.

11.—Turkish court-martial condemns Enver Pasha, Talaat Bey, and Djemal Pasha to death and Djavid Bey and Alusi Metssa Kiazim to 15 years penal servitude.

12.—Gen. Franchet d'Espèrey, Allied commander in the Near East, announces preparations for an advance on Budapest with 150,000 troops.

Great Britain and France authorize limited resumption of commercial relations with Germany.

American Expeditionary Force headquarters in France moved from Chaumont to Paris.

American mine sweeper *Richard H. Buckley* sunk by mine in North Sea; seven lives lost.

14.—Victory parade held in Paris.

17.—Poles reported to have captured Tarnopol, Galicia.

18.—Inter-Allied Council commits entire charge of occupation of Asia Minor to Gen. E. H. H. Allenby.

19.—Victory parade held in London.

20.—Complete peace treaty delivered to Austrian delegation at St. Germain.

21.—British House of Commons passes Peace Treaty bill.

22.—Konstantinograd reported captured by Ukrainians from Bolsheviks.

24.—Diplomatic relations between Ukraina and Rumania reported resumed.

French troops reported to have occupied Sofia to disarm Bulgarian garrison.

26.—Peace Conference issues statement to Hungarian people demanding overthrow of Bela Kun as a condition precedent to peace.

Italian Government commission of inquiry into Caporetto defeat in October, 1917, publishes report attributing disaster to propaganda, politics and unpreparedness.

27.—Hungarian Soviet troops reported repulsed across Theiss River by Rumanians.

28.—Bulgarian peace delegation submits its credentials to the Peace Conference.

29.—Premier Nitti of Italy in message to Paris *Matin* appeals to the French people for an alliance between the two countries.

Frank L. Polk, American Under-Secretary of State, arrives at Paris.

31.—King George gives assent to the German Peace Treaty and the treaty between Great Britain and France.

Polish Parliament ratifies German treaty.

AUGUST

2.—Supreme Council requests the Rumanian Government to stop advance of Rumanian forces along the Theiss River upon Budapest.

New Hungarian Government seeks to establish relations with the Peace Conference.

Allies in North Russia destroy Bolshevik flotilla on Lake Onega.

3.—Onega, west of Archangel, reported captured by anti-Bolshevik forces.

4.—Budapest occupied by Rumanian troops.

5.—Supreme Council directs Rumanians to withdraw from Budapest and Serbians to stop their advance on the city from the south.

Viscount Uchida, Japanese Foreign Minister, declares that Japan does not intend to claim any rights affecting China's territorial sovereignty in Shantung.

Allied Black Sea fleet bombards Ochakov and Stanislavov.

6.—Supreme Council warns Rumania to withdraw her ultimatum to Hungary and to abide by the conditions of the armistice.

Austrian peace delegation submits counterproposals to peace terms.

7.—Spanish Parliament approves adherence of Spain to the League of Nations.

Bolshevik submarine reported sunk by British warships in Baltic.

8.—Chinese Parliament authorizes President to issue a mandate declaring end of a state of war with Germany.

Belgian Chamber ratifies German Peace Treaty.

Poles capture Minsk.

9.—Archduke Joseph of Hungary applies to Peace Conference for recognition of his Government and pledges execution of terms of the armistice.

10.—Bolshevik forces severely defeated by Anglo-Russian troops on the Dvina near Borok.

12.—Belgian troops occupy Malmedy district of Rhenish Prussia.

13.—Jugoslavs occupy Austrian territory east of Mur River allotted them by Peace Conference.

Dubno, Lutsk, and Vinnytsa reported captured from Bolsheviks by Ukrainians.

14.—Rumanian Government replies to notes of Peace Conference on occupation of Budapest.

Czecho-Slovak forces occupy bridgehead at Pressburg, on Austro-Hungarian border.

Italian commission of inquiry publishes report attributing Caporetto disaster of 1917 mainly to General Cadorna and his subordinate generals.

15.—First Division, A. E. F., begins withdrawal from Coblenz bridgehead.

16.—King Alfonso of Spain signs Act authorizing adhesion by Spain to the League of Nations.

18.—British naval forces sink Bolshevik battle cruiser *Petropavlovsk*, battleship *Andrea-Pervosvan*, and a destroyer in Gulf of Finland and bombard Kronstadt.

Germanians and Poles clash on southeastern Silesian frontier.

22.—Odessa reported captured from Bolsheviks by Ukrainians and Rovno by Poles.

23.—Supreme Council warns Rumania that requisitions by Rumanian troops in Hungary will be charged against her share of Austrian indemnity.

24.—Kiev reported captured from Bolsheviks by Ukrainians.

25.—Belgian authorities take official possession of Malmedy district.

27.—Peace Conference demands of Germany evacuation of Russian territory by German troops.

Pskov, Esthonia, reported captured by Bolsheviks.

30.—British destroyer *Victoria* sunk by Bolshevik submarine in Baltic.

SEPTEMBER

1.—Gen. John J. Pershing sails from Brest.

Bobruisk reported captured from Bolsheviks by Poles and Novosalexndrovsk by Letts and Lithuanians.

2.—Peace Conference delivers revised peace terms to Austrian delegates at St. Germain.

Allies notify German Government that clause of German constitution admitting Austria to the Reichstag is in violation of the Peace Treaty and must be annulled within 15 days.

3.—British destroyer *S19* sunk by mine in Russian waters.

5.—Supreme Council completes draft of Peace Treaty with Bulgaria.

Georges Gaston Quien condemned to death by court martial at Paris for having betrayed Edith Cavell to the Germans.

6.—Austrian National Assembly accepts Peace Treaty.

Replacements for American forces in Siberia arrive at Vladivostok.

August Borms, Flemish Activist leader during German occupation of Belgium, condemned to death at Brussels.

Cornerstone of a monument to commemorate the first landing of American troops in France laid at Bordeaux.

8.—Supreme Council notifies Rumania that no reservations to the Peace Treaty with Austria will be permitted.

Withdrawal of British troops from Archangel announced as under way.

10.—Peace Treaty with Austria signed at St. Germain by all interested powers except Rumania and Serbia.

Convention on international air navigation approved by Supreme Council of Peace Conference.

12.—Italian soldiers headed by Gabriele d'Annunzio in defiance of Government orders occupy Fiume.

Canadian Parliament ratifies Peace Treaty with Germany.

15.—China declares state of war with Germany at an end.

16.—Poles report crossing the Beresina and capture of Borisoff from Bolsheviks.

17.—German Government nullifies clause of constitution on Austrian representation in Reichstag in conflict with Peace Treaty.

18.—Premier Clemenceau denies in Chamber endorsing peace offer to Bolsheviks drafted by Lloyd-George and President Wilson alleged by Wm. C. Bullitt.

Poles reported to have driven Bolsheviks across Dvina and occupied Korohterzht p

19.—Peace Conference delivers terms of peace to Bulgarian delegates in Paris.

21.—Poles report repulse of Bolshevik forces that had crossed the Dvina and occupation of Disna.

22.—Germans sign protocol annulling clause of constitution providing for Austrian representation in the Reichstag.

Supreme Council decides upon repatriation of Czecho-Slovak troops in Siberia.

23.—Trau, Dalmatia, occupied by Italian soldiers but recovered by American naval force and restored to Jugoslavs.

25.—Last of requisitioned Dutch ships restored at Rotterdam.

27.—Peace Conference notifies Germany that unless Russian Baltic provinces are immediately evacuated by German troops economic blockade will be enforced against whole country.

British complete evacuation of Archangel.

29.—Gabriele d'Annunzio announces at Fiume that he considers himself in a state of war with Jugoslavia.

30.—Odessa reported occupied by British troops from fleet in Black Sea.

OCTOBER

1.—Guatemala ratifies German Peace Treaty. Severe defeat of Bolsheviks by Finns at Bulata reported.

2.—French Chamber ratifies Peace Treaty with Germany and protective treaties with Great Britain and the United States.

French and Serbian garrisons withdraw from Fiume.

3.—French Chamber adopts resolution favoring disarmament of Germany by the Allies.

6.—Dvinsk reported captured from Bolsheviks by Poles; railway between Petrograd and Pskov reported cut by North Russians.

7.—King Victor of Italy ratifies German and Austrian Peace Treaties by decree.

8.—Gen. H. J. E. Gouraud appointed High Commissioner of France in Syria.

French Government restores complete postal relations with occupied Rhine territories.

9.—Allies invite Germany, Austria, and the Scandinavian countries to join in a blockade of Soviet Russia.

Riga penetrated by Germans and Russians under von der Goltz.

10.—King George completes ratification of Peace Treaty with Germany for Great Britain.

11.—French Senate ratifies German Peace Treaty and defense treaties with Great Britain and the United States; President Poincare signs decrees declaring state of war ended and abolishing censorship and other war restrictions.

Allies withdraw free passage permits for German shipping in the Baltic and order all vessels to port. German Government orders complete stoppage of shipments to insubordinate troops in Baltic region.

12.—General von der Goltz transfers his command in the Baltic region to General von Eberhardt.

Large Lett force reported landed from British warships at Libau.

Koloshova, 50 miles from Petrograd, captured from Bolsheviks by Northwest Russians.

British complete evacuation of Murmansk.

U. S. Navy completes clearing of North Sea mine field.

Jamburg, 75 miles, southwest of Petrograd, reported captured from Bolsheviks by Estonians.

13.—Pskov captured from Bolsheviks by Northwest Russians.

14.—President Poincare of France signs a decree of general demobilization effective upon promulgation of ratification of Peace Treaty.

British naval commander in Baltic notifies Colonel Avaloff-Bermondot, commanding German troops in the suburbs of Riga, that British ships will open bombardment if evacuation is not completed within 24 hours.

15.—General von der Goltz leaves German-Russian forces on the Baltic.

Allied fleet at Riga bombards island fort of Dunamunde at the mouth of the Dvina.

Kovno reported captured by Poles from German-Russian.

16.—Letts recapture Dunamunde from German-Russian.

Gatchina reported captured from Bolsheviks by Northwest Russians.

17.—Austrian National Assembly votes to accept Peace Treaty of St. Germain.

18.—Supreme Council resolves that representatives of the Great Powers might sit on commissions created under German Peace Treaty before ratification by their Governments.

20.—Krasnaia Gorka, 30 miles west of Petrograd, captured by Northwest Russians.

21.—Austrian National Assembly eliminates from constitution clause declaring Austria to be a component part of Germany.

22.—Austrian National Assembly abolishes name "German Austria" and substitutes title "Republic of Austria."

23.—First two Germans charged with crimes during occupation of France extradited to Lille for trial.

24.—Bulgarian peace delegation submits reply on terms of peace.

General Degoutte succeeds General Fayolle in command of Allied army of occupation.

Pavlovsk and Tsarskoe Selo, south of Petrograd reported captured by Northwest Russians.

25.—President Seitz of Austrian Republic signs Peace Treaty.

Northwest Russians evacuate Tsarskoe Selo and Pavlovsk before strong Bolshevik reinforcements.

26.—Bolsheviks recapture Krasnoe Selo from Northwest Russians.

27.—Japanese Privy Council approves German Peace Treaty.

30.—Japan ratifies German Peace Treaty.

NOVEMBER

1.—Peace Conference notifies Germany that Peace Treaty will remain unratified unless violated armistice conditions are fulfilled.

Rumania notifies Supreme Council of annexation of Bessarabia.

2.—Krasnaia Gorka, on the Gulf of Finland, reported captured by Northwest Russians.

3.—Supreme Council demands reply to notice to Rumania to remove her troops from Hungary.

Gatchina, Luga, and Pskov reported captured from Bolsheviks by Poles.

4.—Ukrainians repulse Cossack forces across Bug River.

6.—Allied missions to the Siberian Government withdraw from Omsk.

7.—Peace Conference demands of Rumania immediate withdrawal of troops from Hungary.

Supreme Council appoints commission to draft final list of Germans accused of war crimes to be demanded for prosecution.

8.—Czecho-Slovak National Assembly ratifies Peace Treaties with Germany and Austria.

Kastovo and Gdov reported recaptured by Bolsheviks from Northwest Russians.

9.—Conference of Baltic States begins at Dorpat, Livonia.

10.—Colombia reported to have ratified League of Nations Covenant.

11.—Brazil ratifies Peace Treaty with Germany. Letts repulse German-Russian from vicinity of Riga.

12.—Peace Conference receives unsatisfactory reply from Rumania to three notes requesting evacuation of Hungary.

14.—Budapest, Hungary, completely evacuated by Rumanians.

Gabriele d'Annunzio with troops lands at Zara on the Dalmatian coast.

Jamburg recaptured by Bolsheviks.

15.—Gabriele d'Annunzio returns to Fiume, leaving occupying troops in Zara.

16.—Bolivia ratifies German Peace Treaty. General Yudenitch reported resigned from command of Northwest Russian army and succeeded by General Laidoner, commander-in-chief of Estonian Army.

18.—Von Hindenburg and Ludendorff testify on conduct of the war before German Assembly committee of inquiry.

Kemmern and Gropin reported captured by Letts from German-Russian.

19.—American peace delegation notifies Supreme Council that it will sail for home on Dec. 5.

20.—Peace Conference notifies Rumania that if Peace Treaty with Austria is not signed immediately she will be regarded as having withdrawn from the alliance.

Great Britain and France exchange ratifications of treaty pledging former's aid to France in case of attack by Germany.

21.—Supreme Council decides to assign Eastern Galicia to Poland for 25 years and agrees to ratify Peace Treaty with Germany on Dec. 1.

Mitau captured by Letts from Russian-Germans. Greeks occupy line of demarkation in Asia Minor against Turkish resistance.

Swiss Parliament approves membership in League of Nations.

23.—German commissioners to sign protocol to Peace Treaty leave Paris to consult their Government.

24.—Jugoslavs demand action by Supreme Council to curb d'Annunzio.

27.—Peace Treaty with Bulgaria signed at Neuilly by M. Stambulivski for Bulgaria; Serbia and Rumania refuse to sign.

28.—Albert Thomas of France appointed Director-General of International Labor Office by International Labor Conference at Washington.

30.—Armistice providing for immediate evacuation of Lithuania reported concluded between Germany and Lithuania.

DECEMBER

1.—Baron Kurt von Lersner, head of German Protocol Commission, notifies Peace Conference that Germany refuses to sign protocol.

2.—Supreme Council decides to eliminate question of Fiume from Hungarian Peace Treaty.

3.—Supreme Council delivers ultimatum to Ru-

mania demanding conformity with decisions of Peace Conference by Dec. 8.

5.—Jugoslavs sign treaties with Austria and Bulgaria.

Estonian and Russian Bolshevik peace delegations meet at Dorpat.

6.—Gustav Noske, German Minister Defense, declares Germany will not sign peace protocol.

8.—Supreme Council delivers notes to German Protocol Commission insisting on demands for fulfillment of armistice terms with some modifications.

10.—Rumania signs Austrian and Bulgarian treaties and declares her troops will be withdrawn from Hungary.

American peace delegates sail from Brest.

11.—Premiers Clemenceau and Lloyd-George and Italian Foreign Minister Scialoja confer in London on outstanding problems of peace settlement.

14.—Last of Russian-German troops under Colonel Bermond evacuate Lithuania.

15.—Germany accepts all Allied conditions for conclusion of peace with exception of proposed reparation for Scapa Flow sinkings for which alternative procedure is offered.

16.—Supreme Council decides to feed Austria and asks United States to finance an undertaking involving \$100,000,000.

23.—Supreme Council in reply to German note make slight concessions on Scapa Flow indemnity.

Premier Clemenceau declares in French Chamber that Great Britain and France will make no compromise with Russian Soviet Government but will become the allies of all peoples attacked by Bolshevism.

Batum and Baku reported reoccupied by British.

31.—Preliminary armistice of one week concluded between Estonia and Russian Soviet Government at Dorpat.

AMERICAN NECROLOGY

ABBEES, Edward S., 49, New York, July 10; actor.

ABOTT, Bessie Pickens (Mrs. T. Waldo Story), 40, New York, Feb. 9; singer.

ADAMS, John J., 72, New York, Feb. 16; former Representative from New York.

ADAMS, Oscar Fay, Boston, April 30; author.

ADDOCKS, John Edward, 77, New York, Aug. 7; financier.

ALDEN, Henry Mills, 82, New York, Oct. 7; editor of *Harper's Magazine*.

ALLIOT, Hector, 56, Los Angeles, Cal., Feb. 15; archaeologist.

ALLSHULER, Joseph Alexander, 57, New York, June 5; writer of boys' stories.

ARONSON, Rudolph, 62, New York, Feb. 4; composer and theatrical manager.

AUSTIN, Richard Wilson, 61, Washington, April 20; Representative from Tennessee, 1907-19.

AYRES, Brown, 62, Knoxville, Tenn., Jan. 28; president of the University of Tennessee.

BACON, Robert 58, New York, May 29; Secretary of State, 1909, Ambassador to France, 1909-12.

BAKER, J. Thompson, Philadelphia, Dec. 7; Representative from New Jersey, 1913-15.

BALLARD, Aaron Edward, 98, Ocean Grove, N. J., Nov. 27; Methodist clergyman.

BANCROFT, John Sellers, 75, Philadelphia, Jan. 29; mechanical engineer, president of the Lanston Monotype Machine Co.

BAINEY, Samuel Stebbins, 73, Milwaukee, Wis., Dec. 31; Representative from Wisconsin, 1895-1903, Judge of U. S. Court of Claims, 1906-19.

BAHR, Amelia Edith Huddellstone (Mrs. Robert), 87, New York, March 10; novelist.

BAINELL, Joseph, 49, New Haven, Conn., May 4; professor of geology in Yale University.

BARRETT, Nathan Franklin, 74, Mount Vernon, N. Y., Oct. 16; landscape architect.

BARRY, Thomas Henry, 64, Washington, Dec. 30; major-general U. S. A., retired.

BASHFORD, James Whitford, 69, Los Angeles, March 18; Methodist Episcopal missionary bishop, author.

BASS, Joseph Parker, 83, Bangor, Me., March 26; publisher of the *Bangor Commercial*.

BATTLE, Kemp Plummer, 87, Raleigh, N. C., Feb. 4; former president of the University of North Carolina.

BAUM, Lyman Frank, 62, Los Angeles, May 6; author, playwright.

BEAUPRE, Arthur Matthias, 66, Chicago, Sept. 14; diplomatist.

BECKER, George Ferdinand, 71, Washington, April 20; geologist.

BELL, James Franklin, 63, New York, Jan. 8; major-general, U. S. A., commanding Department of the East.

BELL, James Montgomery, 81, Los Angeles, Sept. 17; brigadier-general, U. S. A., retired.

BERGH, Albert Ellery, 62, New York, May 7; editor.

BISSELL, William Grosvenor, 49, Buffalo, Nov. 14; sanitarian.

BLAKE, Clarence John, 75, Boston, Jan. 29; professor emeritus of otology in Harvard Medical School.

BLAKELOCK, Ralph Albert, 71, Elizabethtown, N. Y., Aug. 9; painter.

BLISS, Edwin Munsell, 70, Washington, Aug. 6; author, editor.

BLOSSOM, Henry Martyn, Jr., 52, New York, March 23; novelist, playwright.

BODINE, John A., 53, New York, Feb. 24; surgeon.

BOND, Henry Whitelaw, 71, Jefferson City, Mo., Sept. 28; chief justice of the Missouri Supreme Court.

BORLAND, William Patterson, 51, Washington, Feb. 21; Representative from Missouri since 1909.

BOURNE, Frederick Gilbert, 67, Oakdale, N. Y., March 9; capitalist.

BRACKETT, Walter M., 95, Boston, March 4; portrait painter.

BRAHAM, John Joseph, 71, New York, Oct. 28; composer.

BRANARD, Owen, 54, New York, April 2; architectural engineer.

BROOKS, Richard E., Boston, May 2; sculptor.

BROWN, Daniel Russell, 70, Providence, R. I., Feb. 28; Governor of Rhode Island, 1892-95.

BUCHLER, William George, 82, Philadelphia, Aug. 10; rear-admiral, U. S. N., retired.

BUGGE, Jens, 48, West Point, N. Y., July 17; colonel, U. S. A., retired.

BURCHARDI, Bernhard Theodore, 69, New York, Oct. 20; civil engineer.

BURGESS, George Farmer, 59, Gonzales, Tex., Dec. 31; Representative from Texas, 1901-17.

BURNAM, Anthony Rollins, 72, Richmond, Ky., Sept. 9; chief justice of the Kentucky Court of Appeals, 1903-4.

BURNETT, John Lawson, 64, Gadsden, Ala., May 13; Representative from Alabama since 1899.

BURROWS, Lansing, 76, Americus, Ga., Oct. 17; Baptist clergyman.

XXXI. CHRONOLOGY AND NECROLOGY

- CADY, J. Cleveland, 82, New York, April 17; architect.
- CALL, Edward Payson, 63, Larchmont, N. Y., May 19; newspaper publisher.
- CAMPANINI, Cleofonte, 59, Chicago, Dec. 19; opera conductor, director of the Chicago Opera Association.
- CAMPBELL, Alexander Priestly, 54, South Orange, N. J., Dec. 10; bishop of the Methodist Episcopal Church in Liberia.
- CAPERS, John G., 53, Washington, Sept. 5; lawyer, Commissioner of Internal Revenue, 1907 and 1909.
- CARNEGIE, Andrew, 83, Lenox, Mass., Aug. 11; capitalist, philanthropist.
- CARPENTER, Rolla Clinton, 66, Ithaca, N. Y., Jan. 19; professor of experimental engineering in Cornell University.
- CARR, Clark Ezra, 82, Peoria, Ill., Feb. 28; lawyer, U. S. minister to Denmark, 1889-93.
- CARTER, Franklin, 82, Williamstown, Mass., Nov. 22; late president of Williams College.
- CARUS, Paul, 66, La Salle, Ill., Feb.; author, editor of the *Open Court* and the *Monist*.
- CHADWICK, French Ensor, 74, New York, Jan. 27; rear-admiral, U. S. N., retired, author.
- CHAPIN, Heman Gerald, 43, Chappaqua, N. Y., Sept. 28; lawyer.
- CHASE, George Colby, 75, Lewiston, Me., May 27; president of Bates College.
- CHEESMAN, Timothy Matlack, 66, Garrison, N. Y., Feb. 25; former professor of bacteriology in Columbia University.
- CLARK, George Crawford, 73, Aiken, S. C., Feb. 24; banker.
- CLOVER, Richardson, 73, Cheyenne, Wyo., Oct. 15; rear-admiral, U. S. N., retired.
- COBB, Darius, 84, Newton Upper Falls, Mass., April 24; painter.
- COLGATE, Richard Morse, 64, West Orange, N. J., Sept. 17; soap manufacturer.
- COOPER, Charles Lawrence, 74, Worthing, Ohio, Sept. 30; brigadier-general, U. S. A., retired.
- COOPER, Theodore, 80, New York, Aug. 24; civil engineer.
- COWLES, Edward, 82, Plymouth, Mass., July 25; alienist.
- COWLES, Julia Darrow (Mrs. Francis D.), 57, Toronto, Ont., Sept. 6; juvenile writer.
- COWLES, Morris Zalman, 74, Chicago, Dec. 3; late editor of the *American Economist*.
- COX, Kenyon, 62, New York, March 17; mural painter, author.
- COX, William Ruffin, 78, Richmond, Va., Dec. 26; Confederate general.
- CUDAHY, Patrick, 70, Cudahy, Wis., July 25; meat packer.
- CUDDEBACK, William Herman, 67, Goshen, N. Y., Aug. 16; judge of the New York Court of Appeals.
- DAVIES, John Rumsey, 63, Philadelphia, March 15; Presbyterian clergyman.
- DE BOOY, Theodore, 38, Yonkers, N. Y., Feb. 18; archaeologist and explorer.
- DELANO, Jane, 51, Savenay, France, April 15; director of Department of Nursing of the American Red Cross.
- DENISON, Winfred Thaxter, 46, New York, Nov. 5; Assistant Attorney-General, 1910-14.
- DI CELIERE, Count V. Macchi, 52, Washington, Oct. 20; Italian Ambassador to U. S. since 1913.
- DITTENHOEFER, Abram Jesse, 82, New York, Feb. 23; lawyer, author.
- DREW, Sidney, 54, New York, April 9; actor.
- DODD, Townsend B., 33, Philadelphia, Oct. 5; colonel, Air Service, U. S. A.
- DOOLITTLE, Charles Leander, 75, Philadelphia, March 3; professor emeritus of astronomy in University of Pennsylvania.
- DUNEKA, Frederick, Atherton, Summit N. J., Jan. 24; publisher.
- DUNLAP, Hiram J., 78, Kankakee, Ill., Oct. 25; U. S. consul at Cologne, 1905-17.
- DUTTON, Samuel Train, 69, Atlantic City, N. J., March 28; professor emeritus of school administration in Columbia University.
- DUVEN, Henry J., 64, New York, Jan. 15; art dealer.
- DUVENECK, Frank, 70, Cincinnati, Jan. 3; painter.
- EARL, Edwin T., Los Angeles, Cal., Jan. 2; newspaper publisher.
- EDMONDS, George Franklin, 90, Pasadena, Cal., Feb. 27; Senator from Vermont, 1866-91.
- EELLS, Howard Parmelee, 63, Pasadena, Cal., Feb. 14; president of the Bucyrus Co.
- EAGAN, Patrick, 78, New York, Sept. 30; U. S. minister to Chile, 1889.
- ELKINS, George W., 61, Philadelphia, Oct. 23; financier.
- ELLIS, George Washington, 44, Chicago, Nov. 27; lawyer, author.
- ELLYSON, James Taylor, 71, Richmond, Va., March 18; politician.
- EMMET, Thomas Addis, 90, New York, March 1; physician, author.
- ESTOPINAL, Albert, 74, New Orleans, April 28; Representative from Louisiana since 1909.
- EVANS, Frederick, 54, Charlotte, N. C., July 11; editor.
- FARLOW, William Gilson, 74, Cambridge, Mass., June 3; professor of botany in Harvard University.
- FARWELL, Granger, 62, Chicago, May 16; former president of the Chicago Stock Exchange.
- FELL, David Newlin, 78, Buckingham, Pa., Sept. 22; chief justice of the Pennsylvania Supreme Court.
- FIELD, Roswell Martin, 67, Morristown, N. J., Jan. 19; author.
- FLETCHER, Horace, 69, Copenhagen, Denmark, Jan. 13; nutrition expert, author.
- FOSTER, Martin D., 58, Olney, Ill., Oct. 20; Representative from Illinois, 1907-19.
- FOX, John William, 56, Big Stone Gap, Va., July 8; novelist.
- FREER, Charles Lang, 63, New York, Sept. 25; capitalist, art collector.
- FRICK, Henry Clay, 69, New York, Dec. 2; financier.
- FULTON, Robert Burwell, 70, New York, May 29; educator, late chancellor of the University of Mississippi.
- GANTT, Henry Lawrence, 58, Montclair, N. J., Nov. 23; mechanical engineer.
- GARDINER, Asa Bird, 79, Suffern, N. Y., May 28; lawyer, soldier.
- GARRIGAN, Philip Joseph, 79, Sioux City, Iowa, Oct. 14; Roman Catholic Bishop of Sioux City.
- GAUL, Gilbert William, 64, New York, Dec. 21; painter.
- GAUTRY, Harrison E., 78, New York, Jan. 29; capitalist.
- GENUNG, John Franklin, 69, Amherst, Mass., Oct. 1; professor of literature and Biblical interpretation in Amherst College.
- GIBSON, Robert Atkinson, 72, Richmond, Va., Feb. 17; Protestant Episcopal Bishop of Virginia.
- GOODALE, George Pomeroy, 75, Detroit, May 7; dramatic critic of the *Detroit Free Press*.
- GOODWIN, Nathaniel Carl, 61, New York, Jan. 31; actor.
- GORMAN, Arthur Pue Jr., 46, Baltimore, Sept. 3; lawyer, chairman of the Maryland State Tax Commission.
- GREEN, James Woods, 77, Lawrence, Kan., Nov. 4; dean of University of Kansas Law School.
- GREEN, Warren Luquer, 53, New York, Aug. 12; president of the American Bank Note Co.
- GREENE, Harry Irving, 51, Chicago, Sept. 23; novelist.
- GREER, David Hummell, 75, New York, May 19; Protestant Episcopal Bishop of New York.
- GREGG, David, 74, New York, Oct. 11; Presbyterian clergyman, former president of Western Theological Seminary.
- GUBELMAN, Jacob Samuel, 83, Rochester, N. Y., Feb. 10; late professor of theology in Rochester Baptist Theological Seminary.
- GUILFORD, Simeon Hayden, 77, Philadelphia, Jan. 18; dentist.
- GUMMERE, Francis Barton, Haverford, Pa., May 30; professor of English in Haverford College.
- GUNTON, George, 72, New York, Sept. 11; editor of *Gunton's Magazine*.
- HALE, William Henry, 78, New York, May 3; lawyer, hygienist.
- HALL, Pauline, 59, Yonkers, N. Y., Dec. 29; actress.
- HALSEY, Francis Whiting, 68, New York, Nov. 24; editor and author.
- HAMILTON, Allan McLane, 71, Great Barrington, Mass., Nov. 23; psychiatrist.
- HAMMERSTEIN, Oscar, 72, New York, Aug. 1; theatre and opera manager.
- HANDLEY, William White, 47, Callao, Peru, Sept. 27; U. S. consul-general at Callao.
- HARBEN, William Nathaniel, 60, New York, Aug. 7; author.
- HARPER, Carrie Anna, Greenfield, Mass., Dec. 14; professor of English in Mt. Holyoke College.
- HARRISON, Thomas Skelton, 81, Philadelphia, May 1; U. S. diplomatic agent to Egypt, 1897.

XXXI. CHRONOLOGY AND NECROLOGY

HAZEN, John Vese, 69, Hanover, N. H., Oct. 2; professor of civil engineering in Dartmouth College.

HEGEMAN, John Rogers, 74; Mamaronock, N. Y., April 6; president of the Metropolitan Life Insurance Co.

HEINZ, Henry John, 74, Pittsburgh, May 14; manufacturer.

HELM, Harvey 53, Columbus, Miss., March 3; Representative from Kentucky since 1907.

HENDERSON, Charles English, 74, Easton, Md., April 9; late vice-president of the Philadelphia & Reading Railway.

HENDERICKSON, Charles Elvin, 76, Red Bank, N. J., July 22; justice of the New Jersey Supreme Court, 1901-8.

HENRY, Edward Lamson, 78, Ellenville, N. Y., May 9; painter.

HERBERT, Hilary Abner, 84, Tampa, Fla., March 6; Representative from Alabama, 1877-93. Secretary of the Navy, 1893-97.

HERRICK, Sophia McIlvaine Bledsoe (Mrs. James B.), 82 Greenwich, Conn., Oct. 9; editor, author.

HIGGINS, Edward, 63, Bahia, Brazil, Nov. 17; U. S. consul at Bahia.

HIGGINSON, Henry Lee, 85, Boston, Nov. 14; banker, philanthropist.

HIGINBOTHAM, Harlow Niles, 80, New York, April 18; merchant, philanthropist.

HINDS, Asher Crosby, 56, Washington, May 1; Representative from Maine, 1911-15.

HITCHCOCK, Charles Henry, 83, Honolulu, Nov. 7; late professor of geology in Dartmouth College.

HOBART, Frederick, 76, Flushing, N. Y., March 8; mining engineer.

HOCH, August, 51, San Francisco, Sept. 23; psychiatrist.

HODGE, Henry Wilson, 54, New York, Dec. 21; civil engineer, colonel, U. S. A., A. E. F.

HODGES, George, 62, Holderness, N. H., May 27; dean of the Episcopal Theological School at Cambridge, Mass., author.

HODGES, George, Washington, March 14; railroad administrator.

HOLDEN, Joseph, 82, West Pittsfield, Mass., April 24; Shaker leader.

HOLLISTER, Howard Clark, 63, Cincinnati, Sept. 24; U. S. district judge, Southern District of Ohio.

HOLT, William Henry, 76, Louisville, Ky., March 6; U. S. district judge in Porto Rico, 1900-4.

HOOD, John, 59, Annapolis, Md., Feb. 11; rear-admiral, U. S. N., retired.

HOPKINS, Cyril George, 53, Gibraltar, Oct. 8; professor of agronomy in the University of Illinois.

HORN, Elijah Embree, 70, Muskogee, Okla., April 23; Methodist Episcopal bishop.

HUGHES, John J., New York, May 6; Roman Catholic clergyman, Superior-General of the Paulist Community.

HULL, Shelley, 34, New York, Jan. 14; actor.

HUNTINGTON, Charles Pratt, 47, New York, Oct. 15; architect.

HUNTOON, Benjamin Bussey, 83, Louisville, Ky., Aug. 9; superintendent of the Kentucky School for the Education of the Blind.

IDB, George Edward, 59, Locust Valley, N. Y., July 9; president of the Home Life Insurance Co.

JACOBI, Abraham, 89, Bolton Landing, N. Y., July 10; physician.

JACOBS, Charles Mathias, 69, London, Sept. 7; engineer.

JEFFERSON, Joseph Warren, 49, New York, May 1; actor.

JOHNSON, Thomas Moore, 67, Osceola, Mo., March 3; Platonist.

JONES, George Heber, 51, Miami, Fla., May 10; Methodist missionary.

JONES, Pembroke, 60, New York, Jan. 24; financier.

JUDSON, Frederick Newton, 74, St. Louis, Oct. 17; lawyer, author.

JUILLIARD, Augustus D., New York, April 25; capitalist.

JULIEN, Alexis Anastay, 79, South Hardwick, Mass., May 7; late curator of geology in Columbia University.

KEARNEY, Edward Francis, 53, St. Louis, March 10; president of the Washab Railroad.

KEELEY, Edward S., 60, Summit, N. J., Aug. 1; manager of the Sugar Equalization Board.

KELLER, John William, 82, New York, March 5; journalist.

KELLOCOTT, Wm. Erskine, 40, Hastings, N. Y., Jan. 29; professor of biology in the College of the City of New York.

KIMBALL, Francis H., 74, New York, Dec. 25; architect.

KINN, Henry Melville, 80, Providence, R. I., June 16; Baptist clergyman, author.

KNIGHT, John George David, 73, Summit, N. J., June 9; brigadier-general, U. S. A., retired.

KNIGHT, Silas Partridge, 98, New York, June 13; inventor of the electrolyte process.

KRHN, Simon, 62, Cincinnati, Dec. 10; banker.

LAWRENCE, Henry C., 60, New York, Sept. 13; broker.

LAWRENCE, Isaac, 90, Delpine, Mont., March 21; lawyer.

LEE, James Wideman, 69, St. Louis, Oct. 4; Methodist Episcopal clergyman, author.

LEIBERT, Morris William, 63, New York, Jan. 11; Moravian bishop.

LINDEMAN, Edward, Atlantic City, N. J., June 12; surgeon.

LISTER, Ernest, 49, Seattle, Wash., June 14; Governor of Washington since 1913.

LIVERMORE, William Roscoe, 76, New York, Sept. 27; colonel, U. S. A., retired.

LOWRY, Robert James, 78, Atlanta, Ga., Jan. 8; banker.

LUBIN, David, 69, Rome, Italy, Jan. 1; founder of International Institute of Agriculture.

LUDINGTON, Marshall Independence, 80, Skaneateles, N. Y., July 27; major-general, U. S. A., retired.

LYLE, Alexander, 53, New York, May 23; surgeon.

LYNCH, James Kennedy, 62, Alameda, Cal., April 28; governor of the Federal Reserve Bank at San Francisco.

MCCABE, Harriet Calista Clark (Mrs. L. D.), 92, Delaware, O., Sept. 25; temperance worker, missionary.

MCCORMICK, Robert Sanderson, 69, Hinsdale, Ill., April 16; U. S. Ambassador to Austria-Hungary, 1901-3, Russia, 1903-5, and France, 1905-7.

MCCOY, James Henry, 50, Birmingham, Ala., March 22; bishop of the Methodist Episcopal Church, South.

MCDONOE, James Francis, 50, Tours, France, Feb. 6; brigadier-general, U. S. A.

McMILLAN, Philip Hamilton, 46, Detroit, Oct. 4; capitalist.

MCPHERSON, Simon John, 58, Lawrenceville, N. J., Jan. 9; Presbyterian clergyman, headmaster of Lawrenceville School.

MACLAY, Edgar Stanton, 56, Washington, Nov. 2; author.

MACLAY, James, 55, Glen Ridge, N. J., Nov. 28; professor of mathematics in Columbia University.

MACLEAN, Thomas Chalmers, 71, Utica, N. Y., Aug. 29; rear-admiral, U. S. N., retired.

MALLORY, Henry Rogers, 76, Winter Park, Fla., March 4; late president of the Mallory Steamship Co.

MARIX, Adolph, 71, Gloucester, Mass., July 11; rear-admiral, U. S. N., retired.

MARTIN, Thomas Staples, 72, Charlottesville, Va., Nov. 12; Senator from Virginia since 1895.

MASON, John, 61, Stamford, Conn., Jan. 12; actor.

MATCHETT, Charles Horatio, 76, Allston, Mass., Oct. 23; Socialist candidate for President, 1896.

MAURY, Mytton, 79, Yonkers, N. Y., Aug. 4; Episcopal clergyman, editor.

MERRITT, John A., 67, Lockport, N. Y., Oct. 16; former Third Assistant Postmaster-General.

MIELTATZ, Charles Frederick William, 58, New York, June 2; etcher.

MILLER, Andrew, 62, New York, Dec. 31; publisher of *Life*.

MITCHELL, John, 49, New York, Sept. 9; labor leader.

MOON, Reuben Osborne, 72, Philadelphia, Oct. 28; Representative from Pennsylvania, 1903-13.

MULLER, W. Max, 57, Wildwood, N. J., July 12; Orientalist.

NORTON, Arthur Brigham, 62, New York, June 18; oculist.

NOYES, Henry Erastus, 79, Berkeley, Cal., July 14; brigadier-general, U. S. A., retired.

NOYES, La Verne W., 70, Chicago, July 24; manufacturer, philanthropist.

OAKES, Thomas Fletcher, 76, Seattle, March 14; former president of the Northern Pacific Railroad.

OLIVER, George Tener, 71, Pittsburgh, Jan. 22; Senator from Pennsylvania, 1909-17.

- OSBORNE, James Walker, 60, New York, Sept. 7; lawyer.
- PARDEE, Don Albert, 82, Atlanta, Ga., Sept. 26; U. S. circuit judge, Fifth Circuit.
- PARKER, Horatio William, 66, Cedarhurst, N. Y., Dec. 18; composer, professor of theory of music in Yale University.
- FAYNE, William Morton, 61, Chicago, July 11; educator, author, literary critic.
- PENDLETON, Edwin Conway, 72, Philadelphia, Sept. 27; rear-admiral, U. S. N., retired.
- PENROSE, Clement Andriese, 45, Baltimore, July 4; physician.
- PIATT, Sar. h Morgan Bryan (Mrs. John James), 83, Caldwell, N. J., Dec. 22; author.
- PICKERING, Edward Charles, 72, Cambridge, Mass., Feb. 3; professor of astronomy in Harvard University.
- PIGOTT, James P., 66, New Haven, Conn., July 1; Representative from Connecticut, 1894-96.
- PILLSBURY, John Elliott, 74, Washington, Dec. 30; rear-admiral, U. S. N., retired.
- PIRSON, Louis Valentine, 59, New Haven, Conn., Dec. 8; professor of geology in Yale University.
- PITTOCK, Henry L., 83, Portland, Ore., Jan. 28; publisher of the *Portland Oregonian*.
- PINLEY, Frank, 52, San Diego, Cal., Dec. 31; playwright and librettist.
- PLEASANTS, William Heth, 55, New York, March 18; president of the Ocean Steamship Co.
- POCKMANN, Philetus Theodore, 66, New Brunswick, N. J., Nov. 17; Reformed Church clergyman.
- POLLAK, Gustav, 70, Cambridge, Mass., Nov. 1; editor and author.
- POOLE, Thomas Henry, 59, New York, July 31; architect.
- POPE, James Worden, 73, Denver, Aug. 23; brigadier-general, U. S. A., retired.
- POTTER, Nathaniel Bowditch, 49, Santa Barbara, Cal., July 5; physician.
- PRIMROSE, George E., 66, San Diego, Cal., July 23; minstrel.
- PRYOR, Roger Atkinson, 90, New York, March 14; Confederate general, lawyer.
- QUINN, Lemuel Eli, 56, New York, July 2; Representative from New York, 1894-96.
- QUINCY, Josiah, 59, Boston, Sept. 8; First Assistant Secretary of State, 1893, mayor of Boston, 1895-9.
- RAISDALE, James Willard, 46, Washington, July 23; Representative from South Carolina.
- RANDALL, Emilius Oviatt, 69, Columbus, Ohio, Dec. 18; reporter of the Ohio Supreme Court.
- RANDOLPH, Robert Lee, 59, Baltimore, Dec. 12; ophthalmologist.
- RAVEN, Anton Adolph, 85, Caldwell, N. J., Jan. 15; insurance official.
- READE, Philip, 75, Boston, Oct. 21; brigadier-general U. S. A., retired.
- REED, Verner Zevla, 55, Coronado, Cal., April 20; capitalist, author, labor investigator.
- REMSBURG, John Eleaser, 71, Porterville, Cal., Sept. 24; lecturer and author.
- REEM, William, 57, San Francisco, April 6; president of the Standard Oil Co. of California.
- RICE, Charles Edmund, 72, Wilkes-Barre, Pa., May 16; president judge of the Superior Court of Pennsylvania, 1895-1915.
- RICHARDS, Charles Brinckerhoff, 85, New Haven, Conn., April 20; professor emeritus of mechanical engineering in Yale University.
- RINGLINE, Alfred T., 56, Oak Ridge, N. J., Oct. 21; circus owner.
- ROBBINS, Edward, 57, Somerset, Pa., Jan. 25; Representative from Pennsylvania since 1917.
- ROBERTSON, Robert Henderson, 70, Nahasane, N. Y., June 3; architect.
- ROELES, Cephas Brainerd, 82, Meriden, Conn., March 15; silverware manufacturer.
- ROGERS, William O., 74, New York, Dec. 17; educator.
- ROOSEVELT, Theodore, 60, Oyster Bay, N. Y., Jan. 6; twenty-sixth President of the United States, 1901-9.
- ROSSELL, William Treat, 70, New York, Oct. 11; brigadier-general, U. S. A., retired.
- ROWE, Wallace H., 57, Pittsburgh, Feb. 1; president of the Pittsburgh Steel Co.
- SABINE, Wallace Clement, 50, Boston, Jan. 10; professor of physics in Harvard University.
- SAGE, John Charles, 53, Salina, Kan., Oct. 3; Protestant Episcopal Bishop of Salina.
- SALOMON, William, 67, New York, Dec. 14; banker.
- SARGENT, Frederick, 59, Chicago, July 26; mechanical engineer.
- SCHAEFFER, Nathan C., 70, Lancaster, Pa., March 15; superintendent of Public Instruction of Pennsylvania.
- SCHAUFFLER, Adolph Frederick, 73, New York, Feb. 18; Congregational clergyman.
- SCHERMERHORN, Frederick Augustus, 74, New York, March 21; capitalist.
- SCHMER, Rudolph Edward, 60, Santa Barbara, Cal., Aug. 19; music publisher.
- SCHMIDLAP, Jacob Godfrey, 70, New York, Dec. 18; banker, philanthropist.
- SCOTT, John Walter, 75, New York, Jan. 5; philatelist.
- SETTLE, Thomas, 53, Asheville, N. C., Jan. 20; former Representative from North Carolina.
- SEXTON, Lawrence Eugene, 60, New York, Aug. 30; lawyer.
- SHAW, Anna Howard, 72, Moylan, Pa., July 2; woman suffragist.
- SHEARER, George Lewis, 83, Carlisle, Pa., March 10; Presbyterian clergyman, late secretary of the American Tract Society.
- SHEARER, John Bunyan, 61, Davidson, N. C., June 14; late president of Davidson College.
- SHEFFIELD, William Paine, 62, South Kingston, R. I., Oct. 19; Representative from Rhode Island, 1909-11.
- SHELDON, George Rumsey, 61, Carbondale, Ill., Jan. 14; financier.
- SHEPARD, Frederick M., 61, East Orange, N. J., Sept. 17; president of the Goodyear Rubber Co.
- SHOBER, Francis Emanuel, 58, New York, Oct. 7; Representative from New York, 1903-5.
- SHONTS, Theodore Perry, 63, New York, Sept. 21; president of the Interborough Rapid Transit Co. of New York.
- SIDGWICK, Samuel Hopkins, 71, Lincoln, Neb., Dec. 25; judge of the Nebraska Supreme Court, 1902-17.
- SIMPSON, Albert B., 74, Nyack, N. Y., Oct. 29; evangelist.
- SINCLAIR, Angus, 77, Milburn, N. J., Jan. 1; engineer, editor, and author.
- SINNINGSON, Clement Hall, 85, Salem, N. J., July 25; Representative from New Jersey, 1880-82.
- SLIFER, Hiram Joseph, 61, France, Feb. 3; civil engineer, lieutenant-colonel, U. S. A.
- SNYDER, Jonathan Le Moine, 59, East Lansing, Mich., Oct. 23; president emeritus of Michigan State Agricultural College.
- SPOONER, John Coit, 76, New York, June 11; lawyer, Senator from Wisconsin, 1885-91, 1897-1907.
- STANLEY, Caroline Abbot, 69, Kansas City, Mo., Jan. 14; author.
- STANTON, David L., 80, Baltimore, Dec. 26; civil war general.
- STEINWAY, Charles Herman, 62, New York, Oct. 30; piano manufacturer.
- STEPHENS, Henry Morse, 61, San Francisco, April 16; professor of history in the University of California.
- STEPHENS, John Edmonson, 44, Camp de Coetquidan, France, Jan. 4; brigadier-general, U. S. A.
- STEVENS, Frederick William, 73, Morristown, N. J., Nov. 6; vice-chancellor of New Jersey.
- STEWART, John K., 65, Amsterdam, N. Y., June 27; manufacturer, former Representative from New York.
- STODDARD, John Tapan., 67, Northampton, Mass., Dec. 9; professor of chemistry in Smith College.
- STORY, Julian, 61, Philadelphia, Feb. 24; painter.
- STRONG, Henry A., 81, Rochester, N. Y., July 26; president of the Eastman Kodak Co.
- STURGIS, Frederic Russell, 74, Boston, May 6; physician.
- SULZER, Charles August, 40, Sulzer, Alaska, April 16; Delegate from Alaska since 1917.
- SWIFT, William, 71, Newport, R. I., June 30; rear-admiral, U. S. N., retired.
- SYKES, George, 38, Flushing, L. I., Aug. 21; major, U. S. A.
- TAPPAN, Benjamin, 63, Washington, Dec. 18; rear-admiral, U. S. N., retired.
- TAWNEY, James A., 64, Excelsior Springs, Mo., June 12; Representative from Minnesota, 1893-1911, member of the International Joint Commission.
- TAYLOR, Charles Fremont, 63, Philadelphia, Nov. 4; editor of the *Medical World and Equity*.
- THOMAS, Calvin G., 59, New York, Nov. 4; professor of German in Columbia University.
- THOMAS, Chauncey, 69, Pacific Grove, Cal., May 12; rear-admiral, U. S. N., retired.

XXXI. CHRONOLOGY AND NECROLOGY

THOMAS, Douglas Hamilton, 72, Baltimore, March 12; banker.

THOMAS, Eben Briggs, 77, Morristown, N. J., Sept. 4; late president of the Lehigh Valley Railroad.

THOMPSON, Charlotte, 35, New York, Feb. 10; playwright.

THOMPSON, Dwinel French, 73, Troy, N. Y., April 19; professor emeritus of drawing in Rensselaer Polytechnic Institute.

THOMPSON, Frederic W., 45, New York, June 6; theatrical producer.

THOMPSON, Joseph B., 52, Washington, Sept. 18; Representative from Oklahoma since 1913.

THOMPSON, William Baker, 51, Haven, Me., Aug. 16; former Assistant Postmaster-General.

TILFORD, Henry Morgan, 62, New York, Dec. 3; capitalist.

TOWNER, Daniel Brink, 69, Longwood, Mo., Oct.; evangelist and composer.

TOY, Crawford Howell, 83, Cambridge, Mass., May 12; professor emeritus of Hebrew in Harvard University.

TRACBEL, Horace, 60, Bon Echo, Ont., Sept. 9; author.

TRIGGUS, Floyd Wilding, 47, Darien, Conn., Aug. 23; cartoonist.

TUNER, Charles Yardley, 68, New York, Jan. 1; painter.

TYSON, James, 77, Philadelphia, Feb. 21; professor emeritus of medicine in the University of Pennsylvania.

VAN DYKE, Carl Chester, 38, Washington, May 20; Representative from Minnesota since 1915.

VAN HAMM, Caleb Marsh, 58, Miami, Fla., Dec. 27; managing editor of the *New York American*.

VAN LOAN, Charles Emmet, 42, Philadelphia, March 2; novelist.

VERY, Samuel Williams, 72, Newton, Mass., Jan. 3; rear-admiral, U. S. N., retired.

VOLLAND, Paul Frederick, Chicago, May 5; publisher.

VOWLES, Daniel Washington, 95, Quincy, Ill., Aug. 15; Confederate soldier.

WALKER, Mary E., 87, Oswego, N. Y., Feb. 21; physician, women's rights advocate.

WALLACE, James N., 55, Palisades, N. Y., Oct. 11; banker.

WALLER, Elwyn, 73, Morristown, N. J., July 6; chemist.

WALSH, William Shepard, 65; Philadelphia, Dec. 8; literary critic and editor.

WARD, Florence Nightingale Ferguson, 59, San Francisco, Dec. 16; surgeon.

WARREN, Edward K., 71, Evanston, Ill., Jan. 16; manufacturer, president of the International Sunday School Union.

WARREN, Henry Pitt, 73, Albany, N. Y., May 27; headmaster of the Albany Academy.

WASHBURN, John S., 61, Livermore Falls, Me., Sept. 25; president of the Washburn-Crosby Flour Mills Co.

WATSON, Walter Allen, 52, Washington, Dec. 24; Representative from Virginia, 1913-19.

WATTS, Ethelbert, 74, Philadelphia, July 13; U. S. consul-general at Brussels, 1907-17.

WAUGH, Ida, New York, Jan. 25; portrait painter.

WEAVER, William Dixon, 62, Charlottesville, Va., Nov. 2; electrical engineer.

WEBB, Robert Alexander, 62, Louisville, Ky., May 23; professor of theology in Kentucky Presbyterian Theological Seminary.

WEIR, Julian Alden, 67, New York, Dec. 8; painter.

WERNER, Adolph, 80, New York, Aug. 26; professor emeritus of German in the College of the City of New York.

WESTON, Theodore, 86, New York, May 6; architect and civil engineer.

WEXL, Walter Edward, 46, New York, Nov. 9; author.

WHERRY, John, 81, Peking, China, Jan. 20; Presbyterian missionary.

WHITAKER, Herman, 52, New York, Jan. 20; author.

WILCOX, Ella Wheeler (Mrs. Robert J.), 64, Branford, Conn., Oct. 30; author.

WILLIAMS, Arthur Llewellyn, 63, Omaha, Neb., Jan. 28; Protestant Episcopal Bishop of Nebraska.

WILSON, Edward Stansbury, 78, Columbus, Ohio, Dec. 18; editor of the *Ohio State Journal*.

WILSON, H. Augustus, 65, Philadelphia, April 16; orthopedic surgeon.

WILSON, John Moulder, 81, Washington, Feb. 1; brigadier-general, U. S. A., retired.

WITHYCOMBE, James, 65, Salem, Ore., March 3; Governor of Oregon since 1915.

WOOLWORTH, Frank Winfield, 66, New York, April 8; merchant.

WRIGHT, John, 83, St. Paul, Minn., Dec. 23; Protestant Episcopal clergyman.

YOUNG, Bennett Henderson, 75, Louisville, Ky., Feb. 23; Confederate soldier, lawyer.

YOUNG, Richard Whitehead, 61, Salt Lake City, Utah, Dec. 27; brigadier-general, U. S. A., A. E. F., justice of the Supreme Court of the Philippines, 1899-1901.

ZANE, Abraham Vanhoy, 68, Washington, Jan. 2; rear-admiral, U. S. N., retired.

ZEISLER, Joseph, 60, Mackinac Island, Mich., Aug. 31; physician, professor of dermatology in Northwestern University.

FOREIGN NECROLOGY

AKASHI, Metajiro, 55, Tokio, Oct. 24; Japanese general, Governor of Formosa.

ALCOCK, (Sir) John, 27, Rouen, France, Dec. 19; aviator.

ALVAREZ, Francisco, Vera Cruz, Mexico, April 21; Mexican general.

ALVES, Francisco de P. Rodrigues, Rio de Janeiro, Jan. 16; President of Brazil, 1902-6.

ANDREJEFF, Leonid Nikolaevitch, 48, Mustamaki, Finland, Sept. 12; Russian novelist.

ANGELES, Felipe, Chihuahua City, Mexico, Nov. 26; Mexican rebel general.

ANGERS, (Sir) Auguste Real, 80, Montreal, April 14; Lieutenant-Governor of Quebec, 1887-92.

ASHM, Count Sixt von, 63, Asch, Germany, March; German general.

ASTOR, William Waldorf, Viscount, 71, Taplow, England, Oct. 18; capitalist.

BARNARDISTON, Nathaniel Walter, 60, Felixstone, England, Aug. 18; British general.

BERRSFORD, Charles William de la Poer, Baron, 73, Berried le, Scotland, Sept. 6; British admiral.

BERTIE, Francis Leveson, Viscount, 75, London, Sept. 27; British Ambassador to France, 1905-18.

BLANQUET, Aureliano, Chavakita, April 16; Mexican general, former minister of war.

BOTHA, Louis, 56, Pretoria, Aug. 28; Boer general, Premier of South Africa.

BRASSEY, Thomas Alnutt, Earl, 83, London, Nov. 12; naval expert.

CALBETON Y PLANCHON, Fermin, Madrid, Feb. 5; Spanish Minister of Finance.

CALTHROP, (Sir) Calthrop Guy Spencer, 48, London, Feb. 23; Controller of Coal Mines of Great Britain since 1917.

CARP, Pierre P., Jassy, June 24; former Premier of Rumania.

COCHRANE, Francis, 66, Ottawa, Can. da, Sept. 22; late Minister of Railways and Canals of Canada.

CONSTANTINO, Florencio, Mexico City, Nov. 19; opera singer.

COOK, (Sir) Edward Tyas, 62, London, Oct. 1; journalist and author.

CRAWFORD, (Sir) Richard Frederick, 56, Bournemouth, England, Aug. 26; late trade adviser to the British Embassy to the United States.

CRUICKS, (Sir) William, 86, London, April 4; physician.

DAVIDSON, (Sir) James MacKenzie, 62, London, April 2; surgeon, radiologist.

DE BILLY, Edouard, 54, Paris, July 11; French Deputy High Commissioner to the United States, 1917-19.

DE BOISDEFRE, Le Mouton, 80, Paris, Aug. 24; French general.

DE BUYER-MIMEURE, Count Marie J. L. R., Nancy, Dec. 14; French general.

DE COURCEL, Baron Alphonse, 84, Paris, June 16; French diplomat.

DE LANESSAN, Jeon Marie Antoine, 76, Paris, Nov. 8; French Minister of Marine, 1899-1902.

DE LOHMIER, Charles Chamilley, 76, Montreal, May 25; Canadian jurist.

DE LA PLAZA, Victorino, Buenos Aires, Oct. 1; President of Argentina, 1914-16.

DEARIN, Alfred, 63, Sydney, N. S. W., Oct. 7; Premier of Australia, 1903-8.

DEUTSCH, Henri de la Meurthe, Paris, Nov. 24; president of the Aero Club of France.

- DEVELLE, Jules Paul, 74, Paris, Oct. 31; French minister of Foreign Affairs, 1893.
- DIEMER, Louis Joseph, 76, Paris, Dec. 23; pianist and composer.
- DRUMMOND, George Edward, 60, London, Feb. 17; Canadian iron merchant.
- EISNER, Kurt, Munich, Feb. 21; Premier of Bavaria.
- ERLANGER, Camille, 55, Paris, April 24; composer.
- FENG KUO-CHANG, 60, Peking, Dec. 30; President of China, 1917-18.
- FIGGIS, John Neville, 52, London, April 13; historian, theologian, author.
- FIGUEROA, Fernando, San Salvador, June 18; President of Salvador, 1907-11.
- FISCHER, Emil, 67, Berlin, July 16; professor of chemistry in the University of Berlin.
- FORGET, (Sir) Joseph David Rodolphe, 57, Montreal, Feb. 16; Canadian financier.
- FRANCO, Manuel, Asuncion, Paraguay, June 5; President of Paraguay since 1916.
- FRASER, John, 66, Daytona, Fla., Feb. 28; late Auditor-General of Canada.
- FUKUSHIMA, Baron Yasumasa, 65, Tokio, Feb. 19; Japanese general.
- GALLAGHER, Salvador, San Salvador, July 14; Salvador diplomat.
- GOULD, Nathaniel, 61, Bedford, England, July 25; novelist.
- GROEBER, Adolf, 65, Berlin, Nov. 20; leader of the German Center Party.
- GROSSMITH, Weedon, 67, London, June 14; actor, author, playwright.
- HAASE, Hugo, 56, Berlin, Nov. 7; president of the German Independent Socialist Party.
- HABIBULLAH KHAN, Amir of Afghanistan, 46, Laghman, Feb. 20.
- HAECKEL, Ernst Heinrich, 85, Jena, Aug. 9; professor of zoology in the University of Jena.
- HAESLER, Gottlieb von, 84, Berlin, Oct. 26; German field marshal.
- HANNA, William John, 56, Augusta, Ga., March 20; president of the Imperial Oil Co. of Canada.
- HARCOURT, Augustus George Vernon, 84, Ryde, Isle of Wight, Aug. 23; chemist.
- HARRIS, Robert, 69, Montreal, Feb. 27; Canadian portrait painter.
- HARTMANN, Felix von, 67, Cologne, Nov. 11; Cardinal Archbishop of Cologne.
- HERTLING, Count George F. von, 75, Ruhpolding, Germany, Jan. 4; Imperial German Chancellor, 1917-18.
- HOLDEN, (Sir) Edward Hopkinson, 71, Scotland, July 23; banker.
- HOLTZENDORFF, Henning von, 65, Berlin, June 9; German admiral, Chief of General Naval Staff, 1915-18.
- ILICA, Luigi, Rome, Dec. 17; grand opera librettist.
- INOUE, Enryo, Dairen, Manchuria, July 15; Japanese philosopher.
- IRVING, Henry Brodribb, 49, London, Oct. 17; actor.
- ISMAIL KEMAL BEY, 76, London, Jan. 27; Provisional President of Albania, 1912-14.
- ISWOLSKY, Alexander P., 54, Paris, Aug. 16; Russian statesman and diplomat.
- ITOGAKI, Count Taisukei, 82, Tokio, July 23; Japanese Liberal statesman.
- JACKSON, (Sir) John, 68, London, Dec. 15; civil engineer.
- KIRALFY, Imre, 73, Brighton, England, April 27; producer of pageants and spectacles.
- KOEBER, Ernst von, Vienna, March 6; late Premier of Austria.
- LAMY, Etienne Marie Victor, 73, Paris, Jan. 9; secretary of the French Academy, author.
- LAURIER, (Sir) Wilfrid, 77, Ottawa, Feb. 17; Canadian statesman.
- LAWRENCE, (Sir) Joseph, 71, London, Oct. 24; chairman of the International Linotype Co.
- LEONCAVALLO, Ruggiero, 61, Rome, Aug. 9; composer.
- LEBOUX, Xavier Henri Napoleon, 55, Paris, Feb. 3; composer.
- LEVY, Alfred, 78, Pau, France, July 23; chief rabbi of France.
- LIEBKNECHT, Karl, 47, Berlin, Jan. 15; German Socialist leader.
- LUCA, Ramon Barros, Santiago, Chile, Sept. 20; President of Chile, 1910-15.
- LUNA, Palagio B., Buenos Aires, June 25; Vice-President of Argentina since 1916.
- LUXEMBURG, Rosa, 48, Berlin, Jan. 15; German radical Socialist leader.
- MAHAFFY, (Sir) John Pentland, 80, Dublin, April 30; historian, Provost of Trinity College.
- MARIA THERESA, 69, Munich, Feb. 3; former Queen of Bavaria.
- MELENDEZ, Carlos, 58, New York, Oct. 9; President of Salvador, 1915-19.
- MEYER, Kuno, 80, Berlin, Oct. 14; professor of Celtic in the University of Berlin.
- MILLET, Rene, Paris, Dec. 1; late Resident General in Tunis.
- MILLOSEVICH, Elia, Rome, Dec. 5; astronomer.
- MOORMAN, Frederic William, 47, Leeds, England, Sept. 10; professor of English literature in University of Leeds.
- MORALES, Manuel S., San Salvador, Dec. 6; former Minister of Salvador to the U. S.
- MORENO, Francisco P., 68, Buenos Aires, Nov. 23; geographer.
- MORIMURA, Baron Ichizayemon, 80, Tokio, Sept. 11; merchant and financier.
- MURRAY, Sir James Wolfe, 66, Peebles, Scotland, Oct. 18; British general.
- NAPIER, Mark Francis, 67, Inverness, Scotland, Aug. 19; president of Reuter's Telegram Co.
- NAUMANN, Joseph Friedrich, 80, Travemunde, Germany, Aug. 24; president of the German Democratic Party.
- NOVELLI, Erneste, 67, Rome, Jan. 30; actor.
- OSLER, (Sir) William, 70, Oxford, England, Dec. 29; professor of medicine in Oxford University.
- PALMA, Ricardo, Lima, Oct. 7; Peruvian author.
- PATTI, Adelina (Baroness Rolf Cederstrom), 76, Penycae, Wales, Sept. 27; opera singer.
- PAUL, Jose de Jesus, Guatemala, March 3; Venezuelan diplomat.
- PEARS, Sir Edwin, 84, Malta, Nov. 27; journalist and author.
- PECKOVER, Alexander, Baron, 89, Wisbech, England, Oct. 22; banker.
- PEYTRAL, Paul Louis, 77, Paris, Dec. 1; former French Minister of Finance.
- PINTSCH, Richard, 80, Berlin, Sept. 8; inventor.
- PORTE, John Cyril, Brighton, England, Oct. 27; aviator and inventor.
- POYNTER, (Sir) Edward John, 83, London, July 26; painter.
- RAYLEIGH, John William Strutt, Baron, 76, London, June 30; physicist.
- RENOIR, Firmin Auguste, 78, Paris, Dec. 3; painter.
- ROSSETTI, William Michael, 89, London, Feb. 5; author.
- RUSSELL, George William Erskine, 66, London, March 17; author.
- SAKATA, Juir, 50, Madrid, Nov. 27; Japanese Minister to Spain.
- SANDERSON, (Sir) Percy, 77, Reading, England, July 14; British consul-general at New York, 1894-1907.
- SCHREINER, William Philip, 61, London, June 28; Premier of Cape Colony, 1898-1900.
- SHAW, J. Byam, 46, London, Jan. 26; painter and illustrator.
- SIMENS, Wilhelm von, Arosa, Switzerland, Oct. 14; German electrical manufacturer.
- STEELE, (Sir) Samuel Benfield, 69, London, Jan. 30; Canadian general.
- STOREY, George Adolphus, 85, London, July 29; painter.
- SYKES, (Sir) Mark, 39, Paris, Feb. 17; author.
- SILVA, Eloi, 73, Berlin, Sept. 8; opera singer.
- TAILHADE, Laurent, 65, Paris, Nov. 3; poet.
- TERAUCHI, Count Seiki, 67, Tokio, Nov. 3; Premier of Japan, 1916-18.
- VICKERS, Albert, 80, Eastbourne, England, July 12; steel manufacturer.
- VEDRINES, Jules, Les Fouillouses, France, April 21; French aviator.
- WATERLOW, (Sir) Ernest Albert, 69, Hampstead, England, Oct. 25; painter.
- WATSON, William, 50, London, March 3; physicist.
- WILDE, Henry, 85, London, April 3; physicist and inventor.
- WOOD, (Sir) Evelyn, 81, London, Dec. 2; British field marshal.
- WYNDHAM, (Sir) Charles, 81, London, Jan. 12; actor.
- YI HIUNG, 68, Tokio, Jan. 21; Emperor of Korea, 1864-1907.
- ZELAYA, Jose Santos, 65, New York, May 17; President of Nicaragua, 1893-1909.

INDEX

THE CHRONOLOGY AND NECROLOGY ARE NOT INDEXED

- A** BRASINS, production of, 531, 532
 Acceptance corporations, 379
 — Council, American, 379
 Acceptances, bank, 378, 379, 382
 — trade, 379
 Accident insurance, 399
 Acids, chemical properties of, 640
 Acosta, Julio, 127
 Actors' Equity Association, 768
 — Fidelity League, 768
 — strike, 458, 768
 Adelaide, Grand Duchess, abdication of, 161
 Adjutant-General, Army, 196, 324
 Administration, Federal, 194-209
 Adoption, law of, 289
 Adrenalin, pharmacology of, 690
 Adriatic, U. S. naval forces in, 340
 Advisory Tax Board, 370
 Aerial exploration, 629
 — mail service, 595
 — navigation, legislation on, in Great Britain, 270
 — Peace Treaty provisions on, 107
 — traffic, municipal control of, 257
 Aeronautical meteorology, 624
 Aeronautics, 591-598
 — Government activities in, 591
 — military, 591
 — director of, 196
 — naval, 338, 591
 Aetna Explosives Co. v. Alabama Great Southern R. R. Co., 563
 Affections, alienation of, law of, 281
 Afghanistan, history of, 163
 Afghans, invasion of India by, 148
 Africa, explorations in, 629
 — land bridge between America and, 684
 — maps of, 632
 Age misrepresentation, law of, 283
 Agricultural Appropriation Act, 476, 488, 484, 496, 503
 — census, 513
 — chemistry, 649-65
 — Colleges and Experiment Stations, American, Association of, 480
 — conditions, 342
 — cooperation, 478, 483, 487
 — country agents, 478
 — credit, 498
 — education, 477, 481, 499
 — in Army, 482
 — experiment stations, 477
 — extension work, appropriations for, 478
 — History Society, 483
 — inspection, legislation on, 498
 — insurance, 498
 — lands, mortgages on, 385
 — price of, 482
 — legislation, 496-499
 — meteorology, 625
 — products, exports of, 475, 511
 — imports of, 511
 — marketing of, 497, 498
 — prices of, 344, 512
 — standards for, 498
 — programme, 1919-1920, 475
 — reconstruction, 479
 — research, 478
 Agriculture, 474-483
 — census of, 483
 — cooperation in, 478, 483
 Agriculture, Department of, 197
 — appropriations for, 304, 476, 488, 491, 494
 — changes in, 475
 — Office of Farm Management in, 475
 — Plant Disease, Survey of, 491
 — effect of war upon, 480
 — financial returns of, 479
 — in Alaska, 261
 — in Canada, 137
 — in Guam, 263
 — in Hawaii, 265
 — in Philippine Islands, 266
 — legislation on, 496-499
 — Secretary of, 197
 — soldiers and, 482, 497
 — state departments of, 499
 — statistics of, 506
 Air Board, Canadian, 133
 Air Department, proposed, 591
 Air mail service, 557
 Air Service, Army, 196, 591
 — appropriations for, 192
 — fields of, 193
 — landing fields, 257
 — strength of, 192
 — war record of, 192
 — independent, 329
 — Navy, 591
 Aircraft Production, Bureau of, 591
 Airplane construction, 591
 — design, 591, 593
 — engines, 583, 594
 — lubrication of, 583
 — production of, 192
 — superinduction in, 584
 — exploration by, 629
 — flights, trans-Atlantic, 337, 624
 — fuels, 584
 — races, 596
 — records, 595
 — strength, comparative, in war, 193
 — testing, 591
 Airplanes, commercial applications of, 595
 — flying-boat, type of, 592
 — forest patrol by, 502
 — mapping from, 572, 631
 — navigation of, by sextans, 609
 — telephone communication between, 577
 — used by A. E. F., 193
 — wind motors for, 588
 Airships (see also Balloons), 597
 Akron, city planning in, 241
 Alabama, constitution of, amendments to, 230
 — Department of Child Welfare of, 419
 — geological publications of, 301
 — illiteracy in, 804
 — legislation in, on cattle-tick, eradication, 489
 — on child labor, 472
 — on education, 499, 802
 — on forest reserves, 503
 — on workmen's compensation, 398, 470
 — prison labor in, 434
 — Tax Commission of, 374
 — taxation in, of incomes, 373
 — of property, 374
 Alabama v. Kolb, 284
 Alabama v. Yeatley, 274
 Alameda, zoning in, 246
 Alaska, 261-263
 — agriculture in, 261
 — coal fields of, 617
 — coal mining in, 262
 — commerce of, 262
 — education in, 261
 — explorations in, 634
 — exports of, 262, 263
 — exports to, 551
 — fisheries of, 262, 505
 — geology of, 616
 — gold mining in, 520
 — Government railroad in, 570
 — health conditions in, 261
 — immigration into, 261
 — imports from, 552
 — imports of, 262
 — influenza epidemic in, 261
 — labor department of, 472
 — legislation in, on petroleum products, 293
 — on salmon streams, 293
 — mining in, 262
 — musk oxen in, 262
 — police in, 261
 — population of, 213, 261
 — prohibition in, 261
 — railroads in, 262
 — reindeer in, 262
 — roads in, 262
 — seal industry of, 506
 Albania, history of, 159
 Albany, gas rates in, 274
 Alcock, John, trans-Atlantic flight of, 596
 Alcohol, as motor fuel, 658
 Alcohols, chemistry of, 642
 Alexander, Joshua W., 198
 Algæ, 636
 Ali Riza Pasha, 161
 Alien enemies, legal status of, in England, 272
 Alien Property Custodian, 14, 196, 541
 Alienation of affections, law of, 281, 289
 Aliens, emigration of, 441
 — employment of, legislation on, 473
 — legal status of, 464
 Alkali, effect of, on plants, 650
 Allen, Gen. H. T., 328
 Allenby, Gen. Sir E. H. H., 149
 Allied Artists of America, 754
 Allies, advances to, 365, 366
 Alloy steels, 622, 604
 Alloys, non-ferrous, specifications for, 603
 Almelda, Antonio José, 162
 Alsace-Lorraine, German plots in, 152
 — governor of, 152
 — Peace Treaty, provisions on, 98
 — restoration of, to France, 98
 Altman v. Aronson, 285
 Aluminium alloys, 588, 603
 — production of, U. S., 531, 532
 — world's, 528
 Alves, Rodriguez, 125
 Amanullah Khan, 163
 Amalgamated Textile Workers of America, 455
 Ambassadors, U. S., 209
 Amendments to Federal Constitution. See Constitution, Federal.
 — to state constitutions, 230-235

- American Acceptance Council, 379
- archeology, 729
- Association for Community Organization, 408
- for Organizing Family Social Work, 405
- of Economic Entomologists, 493
- of Societies for Organizing Charity, 405
- Astronomical Society, 609
- chronology, 819-830
- City Bureau, 238
- City Planning Institute, 249
- Civic Association, 256
- Congress of Economic and Commercial Expansion, 124
- Ethnology, Bureau of, 200
- Expeditionary Forces, A. E. F., air squadrons in, 192
- airplanes used by, 193
- Ammunition procured for, 191
- animals in, 188
- arrival of personnel in, 177
- artillery procured for, 190
- tractors in, 191
- balloons in, 192
- camps of, in France, 176
- cargo tonnage of, 186
- cases invalidated home in, 183
- by arm of service, 181
- casualties in, 180, 325
- by months, 181
- cemeteries of, 182
- chemical warfare supplies in, 192
- classification of cargos of, 186
- clothing shipped to, 190
- composition of, at armistice, 177
- deaths in, 181
- decorations in, 326
- demobilization of, 320
- divisions in, history of, 178, 179
- education in, 758, 812
- embarkations for, by month, 176
- Engineer Corps of, 565
- expenditures of, 172
- food consumption in, 189
- forage received by, 188
- forestry in, 566
- front held by, 172
- gasoline used by, 189
- hospital cases of, disposition of, 183
- hospitalization in, 183
- libraries in, 816
- mental diseases in, 426
- motor vehicles in, 189
- nationality of ships transporting, 184
- neuro-psychiatric service in, 426
- operations of, 327
- in Siberia, 44, 327
- port equipment of, 189
- operations of, 187
- used by, 187, 188
- prisoners of war in, 180
- proportion of, in action, 320
- return of, 184, 320, 330
- return of dead of, 326
- small arms procured for, 190
- storage of supplies in, 188
- strength of, by areas, 180
- present, 321
- suicides in, 426
- summary of operations of, 171
- supplies of, sale of, 45
- supplies purchased for, in Europe, 186
- tanks in, 191
- Thirteen major operations of, 172
- transport equipment of, 189
- University, 749
- water purification in, 648
- Federation of Arts, 753-756
- of Labor, conference of, 31
- convention of, 450
- international relations of, 447
- American Federation of Labor, legislative demands of, 22
- membership of, 450
- reconstruction programme of, 802
- unemployment programme of, 443
- of Teachers, 808, 809
- Foreign Insurance Association, 397
- Fruit Growers, Inc., 500
- history, 1-68
- Indian, Museum of, 733
- Institute of Architects, 761
- jurisprudence, 273-274
- Legion, 330
- Library Association, 816-817
- literature, 773-778
- Meteorological Society, 626
- mortality Tables, 391, 392
- neurology, 841-845
- Oriental Society, 794
- Painters, Sculptors, and Gravers, Society of, 754
- Philosophical Association, 723
- Phytopathological Society, 491
- Public Health Association, 716
- Railway Express Co., 556
- Red Cross, See Red Cross
- Relief Administration, 17
- Samoa, exports to, 551
- Social Hygiene Association, 423
- Society for Testing Materials, specifications of, 605
- of Landscape Architects, 761
- of Municipal Improvements, 256
- Statistical Association, 737
- Telephone and Telegraph Co., 558
- University Union in Europe, 812
- Americanization, 402, 442, 803
- bill, Kenyon, 804
- Amerland v. North Dakota, 463
- Ames, Charles B., 196
- Amines, Chemistry of, 641
- Ammonium sulphate, production of, 480
- Ammunition produced by Allies, 170
- produced by U. S., 191
- Amoebic dysentery, 704
- Amster plan of railroad control, 34
- Amsterdam, International Trade-Union Conference at, 447
- Anæsthetics, 645
- Anarchist emblems, legislation on, 291
- Anarchists, deportation of, 60, 441
- deportation of, legal basis of, 442
- Anatomy, 670
- Andrews, Adm. Walter, 340
- Angeles, Gen. Felipe, 129
- Animal Industry, Bureau of, 198
- Appropriations for, 476, 488
- psychology, 727
- Annelida, 678
- Annulment of marriage, law of, 289
- and Divorce Act, Uniform, 273
- Ansell, Gen. S. T., attacks court-martial system, 46
- Antarctic, meteorology of, 633
- Anthocyanins, 642
- Anthracite coal industry, wage agreement in, 462
- Antirax, 489
- Anthropology and ethnology, 729-734
- International Institute of, 730
- Teaching of, 730
- Antilles, palæontology of, 684
- Antimonial lead, 527
- production of, 531, 532
- Anti-trust laws, decisions under, 294, 362
- Aphids, 681
- Applars, inspection of, 498
- Appalachian Mountains, building of, 627
- Apple blotch, 492
- canker, 685
- Apple psyllid, 495
- Apples, price of, 344
- production of, 343, 499
- Appropriation bills, 65th Congress, failure of, 1
- Appropriations, Federal (see also subjects of appropriation), 208
- Arbitration, International, in League of Nations, 76, 79
- Armaments, reduction of, under League of Nations, 79
- Archeology, American, 729
- classical, 762-763
- Archangel, American troops in, 327
- military operations at, 167
- Architect, U. S. Supervising, 195
- Architects, American Institute of, 761
- war service of, 758
- Architecture, 757-761
- landscape, 761-762
- naval, 598
- social value of, 758
- Argentina, history of, 124
- relations of, with Germany, 124
- Arizona, archaeological investigations in, 733
- aerial surveys in, 301
- copper deposits of, 618
- geological publications in, 301
- irrigation, in, 304
- labor laws of, 463
- legislation on, on budget, 372
- road bond issue in, 308
- silver mining in, 520
- water code of, 304
- workmen's-compensation law of, 463
- Arizona Copper Co. v. Hammer, 463
- Arkansas, Agricultural Experiment Station of, 477
- constitution of, Amendments to, 230
- workmen's compensation in, 470
- Armenia, history of, 163
- Armenian massacres, punishment for, 160
- Armistice with Germany, violations of, 110
- renewals of, 110
- Arms procured for A. E. F., 190
- production of, by Allies, 170
- Army (see also American Expeditionary Forces), 320-330
- Adjutant General of, 196, 324
- aeronautics in, 591
- Air Service, 192, 193, 196, 329, 591, 592
- Appropriation Act, 47
- food consumption in, 189
- appropriations for war-time, 172
- authorized strength of, 47
- proposed, 48
- aviators, captured by Mexicans, 121
- camps in France, 176
- in U. S., 174, 175
- permanent, 329
- cantonnments, planning of, 249
- Chemical Warfare, Service of, 192
- Chief of Staff of, 196
- clothing produced for, 190
- Committee on classification of Personnel in, 726
- contracts, liquidation of, 45, 323
- court-martial system of, 46
- courts-martial in, 325
- deaths in, 181
- decorations in, 326
- demobilization of, 43, 178, 179, 184, 320
- employment problem of, 445
- desertions from, 426
- discharges from, 184
- draft, illiteracy in, 803
- education in, 812
- agricultural, 482
- Educational Commission, 813
- Engineer Corps of, war work of, 565
- Engineers, chief of, 196
- enlistments in, 322, 328

INDEX

- Army, expenditures on, 172
 - food poisoning in, 647
 - gasoline used by, 189
 - General Staff of, 196, 324
 - recommendations of, 48
 - health conditions in, 697, 711
 - in Spanish-American War, 698
 - influenza in, 698
 - Inspector-General of, 196
 - Judge-Advocate-General of, 196, 325
 - legislation on, 328
 - on Psychological Examination of Recruits for, 726
 - libraries in, 816
 - Liquidation Commission of, 45, 323
 - mental defects in, 426
 - nurses in war, 183
 - Officers' Reserve Corps of, 329
 - resignations of, 184, 321
 - Ordnance Department of, 196
 - pay in, 322
 - permanent policy for, 48, 328
 - personnel, records of, 325
 - physical defects in recruits for, 729
 - measurements in, 729
 - property, disposal of, 323
 - psychological tests in, 425
 - Quartermaster-General of, 196
 - ration, 189
 - rejections from, in draft, 715
 - remount depots, 188
 - Reserve Officers' Training Corps, for, 322, 796
 - Signal Corps of, 196
 - Social hygiene in, 423
 - state quotas in, 173
 - strength of, at armistice, 320
 - commissioned, 322
 - by months, 174
 - present, 320, 321
 - suicides in, 426
 - supplies, disposal of, 308
 - to France, 366
 - supply bases, commercial use of, 312, 571
 - design of, 312
 - Surgeon-General of, 196
 - Surgeon-General's Office of, anthropological section in, 729
 - tobacco smoking in, 706
 - Training Corps, Students, 322
 - transportation of, 320
 - transports, cargo, services of, 185, 321
 - lost at sea, 185
 - nationality of, 184
 - typhoid fever in, 699, 714
 - venereal diseases in, 713
 - war expenditures of, 325
- Arsenic compounds, chemistry of, 643
 - in foods, 647
- Art, 753-757
 - Committee, National, 753
 - Exhibitions, 753
 - Motives in snow crystals, 620
 - museums, 754
 - primitive, 751
- Articles of War, amendments of, 47
- Artillery procured for A. E. F., 190
- Arts, American Federation of, 753, 756
- Ascarids, 490, 678
- Ash Grave Lime & Portland Cement Co. v. A. T. & S. F. Ry., 563
- Asia, history of, 163
- Asia Minor, Italian ambitions in, 90
- Asphalt, investigations of, 366
 - production of world's, 528
- Association of American Agricultural Colleges and Experiment Stations, 480
 - of Railway Executives, control plan of, 33
 - of Training Schools for Professional social work, 409
- Astor, Lady, 140
- Astronomical observations, 610
 - Society, American, 609
- Astronomical Union, International, 609
- Astronomy, 609-614
- Atlantic Fleet, 332
- Atlas Mountains, geology of, 629
- Atlas Portland Cement Co. v. Northampton & Bath R.R. Co., 563
- Atlases, new, 632
- Atmospheric nitrogen, fixation of, 580, 650
- Atoms, structure of, 660
- Attorney-General, U. S., 196
- Auburn Dyeing Co. v. Wardell, 283, 463
- Australia, history of, 150
- Austria, boundaries of, 112, 113
 - debt of, pre-war, 114
 - history of, 151
 - hostilities of, with Yugoslavia, 164
 - music in, 765
 - Peace Treaty, with. See Peace Treaty, Austrian.
 - reparation demanded of, 113
 - representation of, in German Reichstag, 112
- Austria-Hungary, dismemberment of, 112
 - shipping loss of, 546
- Automatic telephones, 577
- Automobile bodies, 590
 - design, 589
 - engines, 583, 584, 589
 - fuels, 584, 590, 658
 - industry, 589
 - industry, strikes in, 459
 - license fees, 374
- Automobiles, 589-590
 - exports of, 537
 - in A. E. F., 189
 - theft of, legislation on, 293
- Aviation fields, Army, 193
 - landing places, municipal, 244, 257
 - mission, report of, 591
 - naval, 337
- Aviators, weather forecasting for, 624
- Avocado trees, diseases of, 492
- Azobacter as fertilizer, 651
- B**
 - BABY farms, legislation on, 420
 - Bacillus *Bayeri*, 696
 - Bacon, price of, export, 539
 - Bacteriology and pathology, 693-696
 - of foods, 687
 - Baker, Newton Diehl, 196
 - defends army courts-martial, 46
 - statement of, on military policy, 49
 - on Philippine independence, 63
 - Bakeries, A. E. F., 566
 - Bakers, night work by, 466
 - Balance of trade, 553
 - Balkan states, history of, 159
 - Balloons, dirigible, 337, 596
 - pilot, in wind studies, 624
 - production of, 192
 - Ballot, short, extension of, 224
 - Baltic, Landwehr, 166
 - Baltimore, charities in, 403
 - city planning in, 241
 - garbage disposal in, 319, 572
 - Bane v. Norfolk & Western Ry., 285
 - Bank clearings, 341, 351, 378
 - deposits, 356, 377
 - loans, 356
 - reserves, surplus, 357
 - state-owned, of North Dakota, 387
 - Bankers' acceptances, 378, 379, 382
 - Banking and currency, 375-388
 - legislation, Federal, 385-387
 - state, 387, 388
 - Bankruptcy, adjudication in, law of, 287
 - law of Canadian, 133
 - Banks, branch, in foreign countries, 380
 - discount, 379
 - Federal reserve, branch, 380
 - clearings through, 382, 383
- Banks, Federal, collections through, 382
 - discount rates of, 379, 380
 - earnings of, 380-382
 - rediscouints by, 381
 - relative condition of, 382
 - resources and liabilities of, 380, 381
 - land, Federal, 385
 - joint-stock, 385
 - national, deposits in, 377
 - investments by, in export corporations, 384, 385, 386
 - number and distribution of, 377
 - reserves of, 378
 - resources and liabilities of, 376, 377
 - private, resources and liabilities of, 383
 - savings, in Federal reserve system, 378
 - resources and liabilities of, 383
 - state, in Federal reserve system, 378
 - resources and liabilities of, 383
 - taxation of, 373
 - war paper held by, 380
- Baptist churches, 739
 - social work of, 436
- Barbery, embargo on, 491
- Barbour v. Georgia, 276
- Barcelona, strikes in, 162
- Bark beetles, 680
- Barley, price of, 344, 512
 - production of, U. S., 343, 474, 509
 - by states, 509
 - world's, 506
 - by principal countries, 507
- Barnes, Julius H., 15
- Barney v. Hutchinson, 289
- Barracks, A. E. F., construction of, 566
- Battle cruisers, new, 335
- Battleships, electric propulsion of, 577
 - new, 335
- Bauer, Otto, 151
- Baur v. Norfolk & Western Ry., 286
- Bavaria, revolts in, 153
- Bayer Co., sale of, 541
- Bayonne, water supply of, 318
- Beach, Gen. Lansing H., 196
- Beans, germinated, antiscorbutic value of, 705
 - price of, 512
 - production of, 500
- Beaune, A. E. F. University at, 813
- Beef cattle industry, 486
 - price of, 486
 - exports of, 485
 - production of, 485
- Beer, non-alcoholic, 645
 - 2.75 per cent, 56, 437
- Beet sugar. See Sugar, beet.
- Belgium, elections in, 161
 - German cessions to, 98
 - history of, 161
 - objections of, to League of Nations Covenant, 75
 - representation of, in Peace Conference, 70
 - Socialism in, 440
 - zinc industry in, 527
- Bell Telephone System, statistics of, 558
- Bellinger, Lieut.-Comdr. P. W. L., 337
- Bendigo, gold deposits of, 618
- Benson, Adm. Wm. S., 197, 340
- Berger, Victor L., reflection of, 65
 - unseating of, 4, 439
- Berkman, Alexander, 60
- Berlin, insurrections in, 152
- Bermont, Captain, army of, 166, 167
- Berne, International Labor Conference at, 447
- Bertholf, Ellsworth P., 196
- Betrand, Francisco, 123
- Big Five in Peace Conference, 69
- Billboards, 255

INDEX

- Bills of Lading Act, Federal, constitutional-ity of, 363
 — Uniform, 273
 Biological and food chemistry, 643-647
 — sciences, 666-688
 — Survey Bureau of, 198
 — — Appropriations for, 476
 Birds, fossil, 683
 — nesting, parasites of, 496
 Birth control, 424
 — rates, in principal countries, 721
 — in U. S., 722
 Bisbee deportation cases, 452
 Black, Gen. Wm. M., 196
 Black Warrior River, canalization of, 313
 Blakebeck, Ralph. A., 757
 Blanquet, Gen. Aurelio, 129
 Blast furnaces, copper, 518
 Bleached-flour case, 646
 Blimp airships, 597
 Bilster rust. *See* White pine
 Blood, coagulation of, 692
 — platelets, 672
 — transfusion, 699
 Blue, Adm. Victor, 197, 340
 Blueberries, culture of, 501
Bluebird, opera, 764
 Blue-sky laws, 362
 Bogalusa, La., riots at, 452
 Bollers, steam, 581
 Bolivia, history of, 125
 Boll weevil, cotton, 494
 Bollworm, pink, of cotton, 494
 Bolsheviki, Russian, proposed conference with, 82
 Bolshevism, attitude of organized labor towards, 31
 — campaign against, 59-61
 — in Austria, 151
 — in Germany, 152
 — in Holland, 161
 — in Hungary, 154
 — in Portugal, 162
 — in Rumania, 160
 — in Russia, 156
 — in Switzerland, 163
 — in Turkey, 160
 — in U. S., 59-61
 Bolshevist propaganda, 61
 — Russia. *See* Russia, Soviet.
 Bomb conspiracies, 59
 Bomb market, 353
 — sales, 341
 Bonds, Liberty (*see also* Liberty bonds), prices of, 368
 Books, production of, 773
 Booth v. Knipe, 281
 Borax, effect of, upon plants, 481
 Boston, city planning in, 241
 — community singing in, 765
 — Museum of Fine Arts, 754
 — Public Library, mural paintings in, 756
 — strikes in, of policemen, 24, 65, 457
 — — of transit workers, 456
 — teachers' salaries in, 808
 — Trade Union College, 452
 Boston & Maine Ry. v. Piper, 279
 Botany, 685-688
 — morphology, 687
 — physiology, 685
 — taxonomy, 687
 Botha, Gen. Louis, 149
 Botulism, 645
 Boundaries, international, new, maps of, 630
 Boycotts, legality of, 283, 463
 — professional, 271
 Boys' Working Reserve, 799
 Brand, Chas. J., 198, 475
 Brass, electrometallurgy of, 654
 — furnaces, electric, 579
 Bratiano, J. J. C., 160
 Brazil, history of, 125
 — international relations of, 126
 — representation of, in Peace Conference, 70
 Breeding, animal, 484
 Breweries, uses of, under prohibition, 659
 Bribery of railroad employees, decisions on, 294
 Brick, specifications for, 602
 Bridgeheads, German, occupation of, 109
 Bridgeport, community drama in, 415
 Bridges, concrete, 569
 — steel, 569
 Brighton v. Claflin, 290
 British Dominions, status of, in Peace Conference, 132
 — Educational Mission, 810
 — Empire (*see also* Great Britain and dominions by name), history of, 138-150
 — — representation of, in Peace Conference, 69
 — Medical Association, boycotts by, 271
 — Preferential Tariff, Canadian, repeal of, 134
 — ships, U. S. troops carried by, 331
 — tariff, 142
 Bristol, Adm. Mark, 340
 Brockdorff-Rantzau, Count, 94
 Brokers' commissions, 278, 361
 Bromine compounds, chemistry of, 641
 Broncho-pneumonia, influenzal, 695
 Brum, Baltasar, 131
 Buckwheat, price of, 344, 512
 — production of, U. S., 343, 509
 Budapest, occupation of, by Rumanians, 154
 Budget, Federal, 54, 371, 372
 Budgets, state, 226, 227, 372
 Buffalo, charities in, 405
 — Fine Arts Academy, 754
 — garbage disposal in, 319, 572
 — Socialist vote in, 438
 Buffalo Lumber Exchange v. Buffalo Chamber of Commerce, 562
 Buffalo Zinc & Copper Co. v. Hale, 281
 Building construction, industrial, 568
 — Industry, National Board for Jurisdiction Awards in, 460
 — materials, investigations of, 300
 — operations, 341, 348
 Bukowina ceded to Rumania, 112
 Bulgaria, boundaries of, 116
 — German Peace Treaty provisions on, 101
 — history of, 159
 — military strength of, 117
 — Peace Treaty with, 116
 — reparation demanded of, 117
 — Socialism in, 440
 Bullard, Adm. W. H. G., 340
 Bullitt, W. G., testimony of, on Peace Conference proceedings, 10
 Bureaus, Federal. *See* bureaus by name.
 Burleson, Albert S., 196
 — attitude of, towards Government ownership, 41
 Burt v. Farmers' Cooperative Irrigation Co., 307
 Business conditions, 341-363, 536
 — conduct of, 358
 — cycles, 738
 — failures, 341, 349, 536, 537
 — Government control of, 358
 — judicial decisions affecting, 362
 — protection of, laws for, 292
 Businessmen's Anti-Stock-Swindling League, 361
 Bustillos, V. Marquez, 132
 Bute, James, Co. v. A. T. & S. F. Ry, 563
 Butler Art Institute of Youngstown, 754
 Butter, creamery, production of, 483
 — exports of, 484
 — price of, 512
 Butterfield, Kenyon L., 482
 C-5, flight of, 337
 Cabinet, members of, 194-199
 Cables, German, Peace Treaty provisions on, 103
 — surrender of, 105
 — return of, to private operation, 41, 558
 Caffery v. Southern Tier Publ. Co., 285
 Calder Banking bill, 378
 California, archeological investigations in, 732
 — constitution of, amendments to, 231
 — copper investigations in, 301
 — Department of Agriculture of, 224, 499
 — earthquakes in, 621
 — Efficiency and Economy Commission of, 224
 — electricity, supply in, 575
 — forest fires in, 502
 — fruit crop in, 499
 — gold mining in, 520
 — legislation in, on banking, 388
 — — on civil service, 212
 — — on drainage, 306
 — — on employment, 471
 — — on food warehouses, 316, 498
 — — on forest fires, 503
 — — on fruit standards, 293
 — — on industrial safety, 472
 — — on irrigation, 304
 — — on mothers' pensions, 420
 — — on old-age pensions, 470
 — — on prison mental clinics, 429, 432
 — — on soldier land settlement, 307
 — mineral resources of, 302
 — Mining Bureau, reorganization of, 300
 — oil investigations in, 300
 — reformatories in, 422
 — road bond issue in, 308
 — silver mining in, 520
 — Social Insurance Commission, report of, 464
 — unemployment in, 443, 471
 — walnut crop in, 499
 California v. H. Jeune Co., 294
 Calves slaughtered, 485
 Camp Devens, topography of, 628
 Camphor, synthetic, 658
 Camps, Army, in France, 176
 — in U. S., 174, 175
 Canada, 132-138
 — Agriculture in, 137
 — Air Board of, 133
 — anthropological investigations in, 731
 — Bankruptcy Act of, 133
 — Board of Commerce of, 133
 — Civil Service of, 136
 — dairying in, 137
 — delegates of, to Peace Conference, 133
 — Department of Health of, 133, 718
 — Dominion Astrophysical Observatory of, 610
 — electricity production in, 575
 — foreign trade of, 138
 — fruit crop in, 499
 — geology of, 617
 — Government merchant marine of, 135
 — Highways Act of, 134
 — housing in, 134, 250
 — immigration from, 441
 — imports from, 552
 — Industrial Relations Commission of, 136
 — labor troubles in, 136
 — legislation in, 133
 — livestock in, 137
 — militia of, 134
 — naturalization law of, 133
 — peace treaties ratified by, 133
 — pensions in, 134, 136
 — political situation in, 133
 — Prince of Wales' visit to, 133
 — public debt of, 138
 — railroad legislation in, 134
 — revenue and expenditure of, 138
 — Soldier Settlement Act of, 134
 — Status of, in League of Nations, 133
 — — in Peace Conference, 132
 — tariff of, 134
 — taxation in, 134
 — technical education in, 134
 — trade of, with U. S., 138

- Canada, United National Campaign in, 747
- War loans of, 138
- Canadian Government Merchant Marine, 135
- Government Railways, 135
- Municipalities, Union of, 256
- National Committee for Mental Hygiene, 427
- National Railways, 135
- Northern Railway, 135
- Canals (*see also* Canals by name), construction of, 570
- projects for, 312
- traffic on, 554
- Candidates for office, rights of, 274
- Canyon Co. Drainage District No. 2 v. Extension Ditch Co., 307
- Cape Cod Canal, purchase of, 570
- Capital punishment, status of, 432
- Carbohydrates, chemistry of, 641
- Carbon compounds, chemistry of, 638
- dioxide, thermal properties of, 587
- Carnegie Institute of Pittsburgh, 754
- Steel Corporation, housing project of, 248
- Carranza, Venustiano, 129
- Carriers, common, law of, 275, 278
- liability of, 279, 282
- passenger elevators as, 285
- Cars, freight, reinforced concrete, 586
- Carson, Sir Edward, 146
- Cartography, 630-632
- Casting machines, alloy, 588
- Castings, aluminium, 603
- steel, 522, 588
- Casualties, American, 325
- in A. E. F. by Arm of Service, 181
- by months, 181
- total, 180
- total, in Great War, 170
- Casualty insurance, 393-395
- statistics of, 397, 398
- Catholic War Council, National, 435
- Welfare Council, National, 435
- Catron, Peter, murder of, 121
- Cattle, dairy, number of, 483
- industry, 486
- price of, 512
- scab, 489
- slaughtered, 485
- statistics of, 513
- tick, eradication of, 486, 489, 493
- tuberculosis in, 488
- Cave art, 731
- Cayuga and Seneca Canal, traffic on, 555
- Cellulose, food products, 644
- Cement manufactures, combinations of, 363
- mills, A. E. F., 567
- plants, state, 226
- production of, in U. S., 531
- by states, 534
- properties of, 602
- Cemeteries, A. E. F., in Europe, 182
- Censorship of Socialist press, 439
- Census, Bureau of, 199
- of agriculture, 483, 513
- of insane, 735
- of manufactures, 544
- of marriage and divorce, 735
- of Negro population, 734
- of population, 737
- school aid in, 800
- officials, appointment of, 210
- Central stations, 574
- interconnection of, 575
- municipal, 575
- Centralia, Wash., riots at, 451
- Cereal Pathologists, Conference of, 491
- Cereals, diseases of, 491
- production of. *See* Crop production.
- Cerebrospinal meningitis in horses, 490
- Certificates of indebtedness, Treasury, 368, 369
- Chamberlain-Kahn Act, 423, 714
- Chamorro, Emilio, 130
- Champlain Canal, traffic on, 555
- Charitable corporations, decisions affecting, 281
- Charities, administration of, 403
- and correction, conferences of, 410
- financing of, 407
- Jewish, 751
- Charity, American Association of Societies for Organizing, 405
- Charleston Terminal port development at, 314
- Charlotte, Grand Duchess of Luxembourg, 161
- Charters, municipal, 237-239
- Chattanooga River Brick Co. v. Alabama Great Southern R.R. Co., 563
- Chattels, gift of, 271
- hire-purchaser of, 271
- Cheese exports of, 484
- making, 484
- — pepsin in, 652
- production of, 482
- Chemical engineering, 655-659
- Foundation, Inc., 541
- glassware, production of, 544
- industries, 541, 655
- materials, production of, in U. S. 531, 532
- patents, German-owned, 541
- warfare, 656
- — Service, supplies for, 192
- Chemicals, exports of, 537
- Peace Treaty provisions on, 105
- shipping containers for, 659
- Chemineau, opera, 764
- Chemistry, 637-659
- agricultural, 649, 652
- biological, 643-647
- Bureau of, 198
- — Appropriations for, 476
- colloidal, 633, 686
- electro-, 652-655
- food, 643-647
- industrial, 655-659
- inorganic and physical, 637-640
- of nutrition, 643
- organic, 641-643
- plant, 642, 651, 686
- radio, 638
- sanitary, 647-649
- soil, 649
- in steel making, 524
- Chesapeake & Delaware Canal, purchase of, 570
- Chest, surgery of, 708
- Chestnut blight, 492
- Chicago, Art Institute of, 754
- Community Service Organization in, 466
- Council of Social agencies, 403
- elections in, 256
- excess condemnation in, 242
- gas rates in, 318
- Labor Party vote in, 438
- Pennsylvania Ry. freight station at, 761
- reconstruction programme of, 242
- smoke nuisance in, 254
- Socialist vote in, 438
- state group hospital at, 405
- strikes in, of carmen, 456
- zoning in, 245
- Chicago, Milwaukee & St. Paul Ry., electrification of, 576
- Chief of Staff, Army, 196
- Child hygiene, state bureaus of, 419, 715
- labor, 469
- — legislation on, 471
- — standards for, 418
- — taxation of products of, 52, 370, 371, 463
- — welfare, 417-422
- — commissions, state, 419
- — legislation on, 419
- — standards of, 417
- Children, defective, legislation on, 421
- delinquent, 431
- — legislation on, 420
- dependent, legislation on, 419
- health of, 418
- illegitimate, legislations on, 420
- Children, mental defects in, 429
- Children's Bureau, 199
- code commissions, state, 419
- year campaign, 417, 715
- Chile, exchange professorships with, 811
- history of, 126
- international relations of, 126, 131
- nitrate industry of, 126
- China, claims of, to Shantung, 9
- entry of, into Great War, 90
- exports to, 347
- history of, 163
- provisions of Peace Treaty on, 101
- refusal of, to sign German treaty, 93
- relations of, with Japan, 90
- signature of Austrian Treaty by, 115
- Chinese immigration, 442
- Chlorine, 641
- electrolytic production of, 653
- index of water, 643
- Christian Churches, 739-750
- Missionary Society, United, 740
- Science, bequests for, 281
- Chronology, American, 819-830
- of the European War, 835-841
- foreign, 830-835
- Cholmeley-Jones, R. A., 196
- Chubutite, 620
- Churches (*see also* churches by name), Christian, 739-750
- Evangelical, movement for union of, 739, 746
- social work of, 435
- union movements among, 746
- Churches of Christ, Federal Council of, 436
- Cicada, periodical, 495
- Cincinnati, billboards, ordinance of, 255
- charity councils in, 408
- housing in, 247
- Circuit Courts of Appeals, U. S., 208
- Cities, financial problems of, 239
- statistics of, 259, 260
- population of, 259, 260
- Citizenship, Bureau of, 195
- education for, 803
- examinations in, 212
- Citrus canker, 492
- fruits, bad selection of, 501
- production of, 499
- City Bureau, American, 238
- government (*see also* under Municipal), 237-260
- by commission, 237
- managers, 238
- Association, 233
- maps, 244
- planning, 241-246
- Conference, 256
- conferences on, 249
- Institute, American, 249
- legal status of, 244
- National Conference on, 249
- promotion of, 244
- in reconstruction, 242
- reports, 241
- terminals in, 243
- War memorials in, 245
- Civic Association, American, 256
- centers, 245
- Civil engineering, 565-572
- service, 210-212
- Commission, U. S., 200, 210
- — liability of, to mandamus, 288
- National Assembly of, 212
- — Federal, 210
- — municipal, 211
- — Reform League, National, 210, 212
- War, health conditions in, 711
- Claims, Court of, 208
- Clark, Champ, 3
- Classical archaeology, 762-763
- Claxton, v. Pool, 280
- Clays, glacial, banding in, 615
- investigations of, 300

- Clayton Anti-trust Act, cases under, 362
- Clemenceau, Georges, attempted assassination of, 151
- president of Peace Conference, 71
- Cleopatra*, opera, 764
- Cleveland, charity financing in, 407
- charter amendment in, 238
- housing in, 247
- Climatology, 626
- Clinics, industrial, 466
- Clothing industry, joint council in, 461
- strikes in, 455
- Manufacturers, National Industrial Federation of, 461
- Coal beds, burning of, 616
- identification of, 517
- coke, and petroleum, 516-517
- distillation of, low-temperature, 583
- exports of, 517
- German, to be delivered to France, 105
- industry, anthracite, wage agreement in, 462
- Lands Leasing bill, 62
- strike of, 26, 459, 460
- — injunctions in, 27
- — revival of Fuel Administration in, 15
- — settlement of, 28
- mines, nationalization of, in Great Britain, 143
- mining, 516
- — in Alaska, 262
- — in Spitsbergen, 634
- production of, in U. S., 534
- — world's, 528
- — by principal countries, 529
- pulverized, as blast-furnace fuel, 526
- — in copper blast furnaces, 518
- — as locomotive fuel, 586
- resources, investigations of, 300
- sulphur in, 517
- Coal-tar products, manufactures of, 541
- Coast Artillery, Chief of, 196
- and Geodetic Survey, 199
- Guard, 196, 338
- — in war, 173
- Cocoa-nut butter, imports of, 500
- Cocleuterata, 677
- Cohen, J. M., *In re* Estate of, 288
- Coches, N. Y., strike of textile workers in, 464
- Coke making, 517
- production of, in U. S., 534
- Colby, Bainbridge, 194, 199
- Cold storage, legislation on, 19, 316, 497
- Cole v. Cole, 272
- Colgate Case, decision in, 363
- Collective bargaining, 29
- judicial decisions on, 462
- College endowments, campaigns for, 807
- entrance, psychological tests for, 728
- Colleges, teachers' unions in, 809
- Colloidal fuels, 582
- Colloids, chemistry of, 638, 686
- Colombia, history of, 126
- international relation of, 127
- treaty with, 63, 127
- Colorado, areal surveys in, 301
- constitution of, amendments to, 231
- geological investigations in, 302
- gold mining in, 520
- Public Utilities Commission v. A. T. & S. F. Ry., 563
- Rockies of, 627
- silver mining in, 514
- Columbus, playgrounds in, 415
- taxation in, of gas company, 313
- Columbus Ry. Co. v. Columbus, 275
- Comets, 612
- Commerce, Department of, 198
- Industrial Board of, 16
- foreign (see also Exports and Imports), 546, 547, 548-553
- Commerce, foreign, with Canada, 138
- — and Domestic Bureau of, 198
- — education for, 807
- — effect of prices on, 347
- — financing of, 53, 359
- — promotion of, 53
- — ratios of exports and imports in, 548
- — restrictions on, abolished, 14
- — shipping in, 546, 547
- — value of, 548
- — volume of, 346
- Government control of, 358, 553
- Interstate. See Interstate Commerce
- Secretary of, 198
- Commercial Cable Co., 558
- Club of Omaha v. Baltimore & Ohio R. R. Co., 562
- Conference, Pan-American, 124
- Expansion, American Congress of Economic and, 124
- geology, studies in, 299
- Commission government of cities, 237
- Committee of, 48, 65, 66
- on Classification of Personnel in the Army, 726
- on Psychological examination of Recruits, 725
- Common carriers. See Carriers.
- Communist Labor Party, 438
- Communist Party, 438
- Community buildings as war memorials, 406, 416
- councils, 406
- days, 415
- drama, 415
- life, improvement of, 406
- music, 415, 764, 765
- Organization American Association for, 408
- recreation, 413
- Service, Incorporated, 402, 406, 414
- — of Red Cross, 412
- singing, 415
- trusts, 258
- Compass, radio, 577
- stations, radio, 339
- Competition, unfair, decisions on, 287
- Conciliation, Division of, 199
- Concrete bridges, 569
- freight cars, 586
- oil tanks, 569
- properties of, 568, 602
- roads, 311
- ships, 568, 572, 600
- Condemnation, excess, 242
- procedure in Great Britain, 243
- Conditional Sales Act, Uniform, 273
- vendor, title of, 279
- Confiscatory rates, law of, 274
- Congregational Churches, National Council of, 740
- Council, International, 740
- Congress, committees of (see also House and Senate), seniority rule in, 3
- Library of, 200
- members of, salary of, 202, 204
- organization and work of, 1-6
- relations of President with, 1, 5, 9
- Sixty-fifth, 200
- — failure of appropriation bills in, 1
- — filibuster in, 1
- — legislation of, 1, 200
- — third session of, 1, 200
- Sixty-sixth, first session of, 2, 3, 207
- — House in, 203
- — organization of, 2
- — legislation of, 4, 207
- — legislative programme of, 2
- — President's messages to, first session, 3
- — second session, 5
- — Republican control of, 64
- — second session of, 5, 208
- — Senate in, 200
- Conifers, diseases of, 492
- Connecticut, archaeological investigations in, 734
- areal surveys in, 301
- legislation in, on industrial safety, 472
- — on mothers' pensions, 419
- — on old-age pensions, 470
- — on recreation, 416
- — on women's work, 470
- — on workmen's compensation, 470
- prisons in, 434
- prohibition issue in, 438
- Public Welfare Commission, report of, 46
- taxation on, of corporations in, 372
- — insurance companies in, 372
- — water supplies in, 302
- Connor, Gen. W. D., 323
- Constitution, Federal, amendments to, 55, 58, 437
- — Eighteenth (see also Prohibition)
- — state referendums on, 277
- — woman suffrage, 58, 227
- Constitutional amendments, state (see also states by name), 230, 235
- conventions, state, 223, 230
- law decisions in, 274-277
- Construction and Repair, Bureau of, Navy, 197, 592
- Consular Bureau, 195
- Service, 195, 209
- Consuls, U. S., 209
- Contagious diseases, transmission of, 697
- Contempt of court, law of, 287
- Continental Europe, history of, 151-163
- Contracts, law of, 270, 277, 278
- Peace Treaty provision on, 107
- specific performance of, 280
- Contributory negligence, law of, 285
- Convict labor, 311, 433
- Coolidge, Calvin, 65
- Coontz, Adm. Robert E., 197, 340
- Coöperation, agricultural. See Agricultural coöperation.
- Coöperation societies, 404
- Coos Bay land grant; forfeiture of, 296
- Copper, 517-519
- deposits, geology of, 618
- electrolytic recovery of, 653
- exports of, 550
- metallurgy of, 518
- ores, crushing of, 519
- — leaching of, 519
- plating, 653
- price of, 345, 514, 517
- Copper, production of, U. S., 345, 531, 532
- — by states, 533
- — worlds, 528
- — by principal countries, 529
- resources, investigations of, 301
- trade, 345
- Copra press cake, nutritive value of, 644
- Copyrights, German, sale of, 542
- Coral reefs, 615, 628
- Corbin Y. M. C. A. v. Comm, 281
- Corcoran Art Gallery, 755
- Corinth, excavations at, 762
- Corneobs, commercial products from, 652
- borer, European, 494
- diseases of, 491
- milling industry, 645
- price of, 344, 512
- production of, U. S., 343, 474
- — by states, 509
- — world's, 506
- — by principal countries, 507
- sweet, effect of storage on, 685
- Corn Products Co. strike, 459
- Corn Products Refining Co. v. V. C. Eddy et al., 647
- Corporation income tax, 369-371
- taxes, state, 372, 373
- Corrosion, steel, 605

- Cost of living, 357, 467, 479
— effect of, on social work, 403
— Federal attacks on, 18
— legislation on, 19, 468
— President's message on, 18
— as reconstruction problem, 18—
21
— relation of, to public health,
403
Costa Rica, exclusion of, from
League of Nations, 76
— history of, 127
Cotton boll weevil, 494
— climatology of, 625
— cloth, price of, export, 539
— consumption of, 539
— Futures Act, rulings on, 360
— glimmers, 539
— manufactures of, 539
— exports of, 540
— pink bollworm of, 494
— price of, 344, 512, 539
— production of, U. S., 343, 474,
509
— — by states, 510
— — world's, 506
— — by principal countries,
507
— spindles, 539
— supply of, 539
— venetians, production of, 544
Cotton v. Fisheries Products Co.,
285
Council of National Defense, 16
Country Life Conference, National,
408, 735
County agents, agricultural, 478
— departments of public welfare,
406
— farm bureaus, 478
— government, 235, 236
— — consolidation of city and,
236
— officers, table of, 221, 222
— tax assessments, legislation on,
375
Courland, history of, 157
Court decisions. *See* Judicial
decisions
— of International Justice, 77
Courts, Federal, 208
— industrial, British, 142, 144
— juvenile, 420, 429
— state, table of, 219—221
Courts-martial, Army, 46, 325
Craftsmen, National Society of,
756
Crankshaft lathe, 588
Crane's Case, 291
Craven, Herman W., 200, 210
Credulous, legal protection of, 290
Crime, effect of war on, 431
— increase of, 226
— relation of mental defect to, 429
Criminal law, statutes in, 291—294
— — Judicial decisions in, 294—
295
— syndicalism, 291, 469, 473
Criminals, defectiveness among,
431
— physical characteristics of, 431
— sterilization of, 727
Criminology, 431
— and penology, 430—435
— psychiatry in, 429
Cripples, industrial. *See* industrial
cripples
Crop conditions, 499
— Estimates, Bureau of, 198
— — appropriations for, 477
— moving, funds for, 382
— production, 342, 474
Crops, relation of climate to, 625
Croscley oil engine, 584
Crotonic acid, effect of, on plants,
649
Crowder, Gen. E. H., 127
Crushing, ore, 515
Crustacea, 678
Crystallography, industrial appli-
cations of, 619
Crystals, structure of, 664
Cuba, exports to, 347
— history of, 127
— imports from, 552
— surveys in, 299
Cumming, Hugh S., 196
Cummins, Senator A. B., 3, 194
— Railroad bill, 35
Currencies, foreign, purchase of,
366, 367
Currency, composition of, 375
— changes in, 375—377
— Comptroller of, 195
Curtiss "Wasp" airplane, 594
Customs Appeals, Court of, 208
Cutler, Burwell S., 198
Cycads, 688
Czecho-Slovakia, history of, 158
— hostilities of, with Hungary,
164
— — with Poland, 165
— Peace Treaty provisions on, 108
— recognized by Austria, 113
— Socialism in, 440
D
DAIL EIRANN, 147
Daily Mail aviation prize, 596
Dairies, inspection of, 498
Dairy by-products, 485
— cattle, breeding of, 484
— — exports of, 484
— — number of, 483
— products, exports of, 484
— — price of, 483
Dairying, 483—485
— in Canada, 137
— chemistry of, 652
Dallas Art Association, 754
city planning in, 242
Dama Fasha, 160
Damages, law of, 271, 290
Dams, 570
Daniels, Josephus, 197
— statement of, on naval pro-
gramme, 50
Daniels Lumber & Mfg. Co. v.
Gallivan Building Co., 290
D'Annunzio, Gabriele, seizure of
Fiume by, 89, 155
Danube, Peace Treaty provisions
on, 108
Danzig area, map of, 630
— free city of, 86
— Peace Treaty provisions on, 100
Dartigueave, Sudre, 128
Davidovitch, Liouba, 160
Davidson casting process, 588
Davis, Norman H., 195
Davis & Co. v. Miller, 287
Daylight saving, fuel economy of,
578
— repeal of, 62, 479, 496, 497
Dayton, Socialist vote in, 438
Dead, return of, 326
Death rates, from influenza, 712
— in principal countries, 721
— in U. S., by causes of death,
721
— — by states and cities, 720
— in U. S. Army, 711
Debt, public. *See* Public debt.
— war, retirement of, 368
Debts, public, of belligerents, 170
Declaratory judgments, 273
Defamation, law of, 285
Defective children; legislation on,
421
Defectiveness among criminals,
431
Defectives, care of, 428
Deficit, Federal, estimated, 371
Delaware, charity administration
in, 406
— constitution of amendments to,
231
— education in, 802
— legislation in, on anarchist em-
blems, 291
Delinquents, children, "legislation
on, 420
Delinquents, venereal diseases
among, 432
Demobilization of Army, 320
— — centers for, 320
— — order of, 320
— — rate of, 321
— of Navy, 330, 338
— unemployment problem of, 445
Denikin, General, 156, 167
Denmark, history of, 161
— Peace Treaty provisions on, 100
Denton v. Booth, 274
Denver, home rule in, 239
Departments, Federal. *See* de-
partments by name.
Dependent, children, legislation
on, 419
Deportation of anarchists, 60, 441
— legal basis of, 442
Desertion, legislation on, 420
Detroit, charity financing in, 407
— excess condemnation in, 243
— Hannan Memorial Hall in, 414
— House Financing Corporation,
247
— playgrounds in, 414
Detroit River, traffic on, 554
De Valera, Eamonn, 145, 146
Diaz, Félix, 129
Dier v. Voorhees, 285
Diesel engines, 584
— marine, 601
Dinosaurs, 682
Diphtheria in U. S. Army, 697
Diplomatic Bureau, 195
— service, 209
Direct primary, status of, 229
Directors of corporations, em-
ployees as, 473
Dirigible balloons, 337, 696
— hangars for, 338
Disabled soldiers, Red Cross ser-
vice to, 412
Disciples of Christ, 740
Discount banks, 379
— rates, 379, 380
Disease, geological history of,
684
Diseases, contagious, in the Army,
697
— industrial, compensation for,
716
— infectious, in U. S. Army, 711
— of live stock, 488
— occupational, compensation for,
716
— plant, 491—493
Distillation of coal, low-tempera-
ture, 583
Distilleries, uses of, under prohibi-
tion, 659
District of Columbia, eight-hour
law of, 294
— flora of, 687
District courts, U. S., 208
Divide, Nev., silver deposits of,
514
Divisions, Army, A. E. F., demo-
bilization of, 178, 179
— — history of, 178, 179
— — strength of, 178
— — average strength of, 172
— — comparative armament of,
171
— — status of, at armistice, 171
— Federal. *See* divisions by name
Divorce, census of marriage and,
735
— law of, 289
— Procedure Act, Uniform, 273
Docks, construction of, for A. E.
F., 566
Domestic Acknowledgments Act,
Uniform, 273
Dominican Republic, American
protectorate over, 127
— exclusion of, from League of
Nations, 76
— history of, 127
— surveys in, 299
Dominion Hotel Co. v. Arizona,
463
Dourine, eradication of, 489
Dowd v. United Mine Workers,
462
Doxford oil engine, 584
Draft army, illiteracy in, 803
— mental defects in, 426
— physical defects in, 729
— records of, 324
— rejections in, causes of, 715
Dragon flies, morphology of, 679
Drainage, 306
— investigations, appropriations
for, 304
— of irrigated lands, 304, 306
— judicial decision on, 307
— legislation on, 62, 306
Drama, 768—772
— community, 415

Draper Catalogue of Stellar Spectra, 609
Drosophila, heredity in, 667
 Drought in Northwest, 487
 Drug control, 646
 Drugs, manufactures of, 541
 — narcotic. *See* Narcotics.
 — synthetic, 645
 Drummond, Sir James Eric, 82
 Dry docks, Navy, 335
 Duckworth Co. v. Illinois Central R. R. Co., 562
 Dugdale v. Zouche, 272
 Dunahoo v. Huber, 295
 Duplex iron, 525
 Dupont de Nemours Co. v. New York, etc., R. R. Co., 563
 Duquesne Light Co., steam turbine of, 581
 Dustfalls, source of, 624
 D'Utassy v. Barrett, 279
 Dutch literature, 786
 Dwight-Lloyd sentering machine, 526
 Dye industry, 658
 Dyestuffs, manufactures of, 541
 — Peace Treaty provisions on, 105
 Dynamical and structural geology, 615-617
 Dysentery, amoebic, 704
 — in U. S. Army, 711

EARTH, magnetism of. *See* Terrestrial magnetism.
 — surface of, brightness of, 610
 — temperature of, 615
 Earthquakes in Porto Rico, 267
 — and volcanoes, 621-622
 East Prussia, Peace Treaty provisions on, 99
 East St. Louis, War Civics Committee of, 407
 Eberle, Adm. Edward W., 340
 Ebert, Friedrich, 153
 Echinodermata, 679
 Eclipse of sun, 660
 Eclipsing binaries, 613
 Economic and Commercial Expansion, American Congress of, 124
 — conditions, 341-363, 536
 — entomology, 493-496
 — geology, 300, 617
 — *Statistics, Review of*, 736, 738
 Economies, 737-738
 Economizers, 582
 Ecuador, history of, 128
 Eden, Nils, 163
 Edge Export Finance bill, 53, 359, 384
 Edleson v. Edleson, 278
 Education, of adults, by labor unions, 452
 — agricultural, 477, 481, 499
 — in Alaska, 261
 — in A. E. F., 758, 812
 — for Americanization, 803
 — in anthropology, 730
 — in Army, 482
 — Association, National, 808, 809
 — Bureau of, 197
 — of citizenship, 803
 — of detectives, 421
 — Department of, proposed, 803
 — and educational institutions, 796, 818
 — effect of the war on, 798
 — of feeble-minded, 428
 — for foreign trade, 807
 — in gardening, 799
 — in Great Britain, 142
 — in Guam, 263
 — in Hawaii, 264
 — health, 805
 — home economics, 799
 — International Institute of, 812
 — relations in, 796, 810-813
 — labor's programme of, 802
 — in League of Nations, 813
 — legislation on, 796, 802
 — mathematical, 607
 — in meteorology, 623
 — military, 796
 — naval, 339
 — in Philippine Islands, 265
 — physical, 416, 805
 — in Porto Rico, 268

Education, psychology of, 728
 — reconstruction in, 796-803
 — rural, 814
 — secondary, reorganization of, 801
 — sex, 423, 805
 — in social work, 409, 413
 — statistics of, 814
 — of teachers for Americanization, 804
 — veterinary, 488
 — in Virgin Islands, 269
 — vocational, 806
 — in Canada, 134
 — Federal Board for, 807
 — of industrial cripples, 464
 Educational Commission, Army, 813
 — Institutions, enrollment in, 815
 — missions, foreign, 796, 810
 — periodicals, war-time, 799
 — surveys, 814
 Edwards, Edward L., 64
 Egan, Re. Keane v. Hoore, 272
 Eggs, control of traffic in, 646
 — price of, 512
 Egypt, Peace Treaty provisions on, 101
 — political conditions in, 149
 Eight-hour day, legislation on, 470
 — laws, decisions on, 463
 Eighteenth Amendment. *See* Prohibition amendment.
 Einstein's theory of gravitation, 660
 Eisner, Kurt, assassination of, 153
 Elections, municipal, 256
 — prohibition issue in, 438
 — state, 64
 Electric cables, research on, 579
 — central stations, 574
 — interconnection of, 575
 — municipal, 318
 — drive for ship propulsion, 601
 — furnaces, 579, 654
 — iron castings from, 525
 — statistics of, 525
 — generators, 575
 — heating, 579
 — illumination, 578
 — lamps, 578
 Light Association, National, 581
 — railroads, 559, 576
 — ship propulsion, 576
 — steel, production of, 525
 — switchboards, 575
 — transportation, 576
 — welding, 579, 606
 Electrical apparatus, exports of, 574
 — Standardization of, 573
 — communication, 577
 — energy, production of, 574
 — distribution of, 574
 — engineering, 572-580
 — insulation, research on, 579
 — machinery, exports of, 537
 — power factors, 575
 — research and invention, 578
 — transmission lines, 575
 Electricity, applications of, 579
 — physics of, 662
 — stimulation of plant growth by, 500
 Electrification of railroads, 576
 Electrochemistry, 579, 652-655
 Electrolytic Chlorine, 653
 — refining, 652
 Electromagnetic waves, diffraction of, 663
 Electrometallurgy of brass, 654
 — of ferroalloys, 655
 — of iron, 625
 — of manganese, 655
 — of steel, 579, 654
 — of zinc, 528
 Electron theory, 640, 660, 663
 Electroplating, 653
 Elevators, micro-leveling, 312
 — passenger, as common carriers, 285
 Elliot, Charles W., educational programme of, 800
 Elizabeth, N. J., housing projects at, 248
 Elkins, George W., art benefactions of, 753

Elmira Reformatory, study of inmates of, 431
 Embarkations from U. S. by months, 176
 Embryology, 673
 Emergency Fleet Corporation, housing by, 249
 — shipbuilding facilities of, 599
 Emigration, 441
 Employees Compensation Commission, U. S., 199
 Employer's liability, decisions on, 275
 — insurance, 398
 — legislation on, 469
 Employment agencies, legislation on, 471
 — conditions in, 1919, 442
 — Service, U. S., 14, 199, 444, 471
 — services, legislation on, 469
 — state, 471
 Empyema, treatment of, 710
 Encephalitis lethargica, 695, 705
 Enemy property, Peace Treaty provisions on, 106
 Engineer Corps, A. E. F., work of, 565
 Engineering, 565-606
 — Chemical, 655-659
 — civil, 565-572
 — Council, National Service Committee of, 573
 — electrical, 572-580
 — harbor, 312
 — highway, 311, 567
 — hydraulic, 585
 — internal-combustion, 583
 — marine, 598
 — mechanical, 580-589
 — military, 565
 — municipal, 571
 — railway, 570, 586
 — refrigerating, 587
 — research, effect of war on, 580
 — steam, 581
 Engineers, Chief of, Army, 196
 — forest, in France, 503
 — reconstruction activities of, 573
 — unions of, 565
 Engines, airplane, 583, 594
 — automobile, 583, 589
 — Diesel, 584
 — internal-combustion, constant-volume, 583
 — marine, 601
 — oil, 584
 — steam, governors for, 582
 England (*see also* Great Britain), Methodist union in, 743
 English language and literature, 778-784
 Engraving and Printing, Bureau of, 195
 Entomologists, Economic, American Association of, 493
 Entomology, 679-681
 — Bureau of, 198
 — appropriation for, 476, 494
 — economic, 493-496
 Enver Pasha, 164
 Environment, relation of, to heredity, 670
 Epigraphy, 790, 795
 Epileptics, census of, 735
 Epinephrin, pharmacology of, 693
 Erie Canal, improvements on, 555
 — traffic on, 555
 Erskine, John, 813
 Esch Railroad bill, 35
 Eskimos, ethnology of, 732
 Espionage Act, convictions under, 59
 — effects of, 60
 — prosecutions under, 451
 Essays, publications of, 778
 Estate taxes (*see also* inheritance taxes), 370, 371
 Estimates of Federal expenditures, 51
 Esthonia, history of, 157
 — hostilities of, with Soviet Russia, 166
 Estoppel, definition of, 290
 Ether, constitution of, 660
 Ethers, acyl-amino-phenol, 643
 Ethics, 724
 Ethnographic maps, 632

- Ethnology, American, Bureau of, 200
 — and anthropology, 729-734
 Eugenics, 666
 Europe, American Red Cross Commission to, 410
 — relief in, 410
 — University Union in, 812
 — ethnographic maps of, 632
 — food requirements of, 475
 — history of, 151-163
 — reconstruction in, 741, 744
 — recreation in, 417
 European corn borer, 494
 European war, aerial photographic mapping in, 631
 — aftermath of, 164-168
 — airplane strength in, comparative, 193
 — belligerents in, comparative strength of, 170
 — statistics of, 170
 — casualties in, 170, 325, 711
 — chronology of, 835-841
 — cost of, 172
 — U. S., 325
 — and divisions in, average strength of, 172
 — comparative armament of, 171
 — status of, at armistice, 171
 — effect of, on agriculture, 480
 — on American industry, 544
 — on archaeological research, 762
 — on architecture, 757
 — on automobile industry, 589
 — on contracts, 270
 — on crime, 431
 — on foreign trade, 346
 — on geographical research, 632
 — on hours of labor, 580
 — on immigration, 440
 — on life insurance, 389, 390
 — on literature, 775
 — on medicine, 697
 — on mental hygiene, 425
 — on philosophy, 723
 — on recreation, 413
 — on scientific research, 580
 — on social work, 401
 — on surgery, 706
 — front held by Allies in, 172
 — health conditions in, 711
 — infectious diseases in, 711
 — Jews in, 751
 — legal termination of, in Great Britain, 270
 — operations of, in Russia, 327
 — statistical summary of, 168-193
 — total forces engaged in, 170
 — western front in, maps of, 631
 Evangelical Churches, movement for union of, 739, 746
 Evolution, organic, 666-670
 Excess condemnation, 242
 Excess-profits tax, 370, 371
 Exchange, foreign, rates of, 383, 384
 Exchanges, regulations affecting, 361
 — removal of war restriction by, 359
 Expenditures, Federal, 50, 364
 — estimates of, 51, 371
 — war, 365
 Experts, compulsory testimony of, 287
 Exploration and geographical research, 632-636
 Explosives, exports of, 550
 — transportation of, 659
 Export corporations, investment by national banks in, 385, 386
 Exports, of agricultural products, 475, 511
 — of Alaska, 262, 263
 — to Alaska, 263, 551
 — to American Samoa, 551
 — to China, 347
 — of coal, 517
 — of cotton manufacturers, 540
 — to Cuba, 347
 — of dairy cattle, 484
 — of dairy products, 484
 — to dependencies, 551
 Exports, to East India, 347
 — of electrical apparatus, 574
 Exports, financing of, Edge bill for, 359, 384
 — of foodstuffs, 549
 — to foreign countries, 548-550
 — of fruits, 500
 — of gold, 383, 535, 548
 — Government control of, 553
 — of Guam, 264
 — to Guam, 551
 — of Hawaii, 265
 — to Hawaii, 551
 — of iron, 535
 — to Japan, 347
 — to Latin America, 123
 — of manufactures, 537, 549
 — of meat, 485
 — of merchandise, 341, 346
 — by classes, 549
 — by continents, 548
 — by groups of ports, 550
 — by principal commodities, 347, 550
 — by principal countries, 549
 — by principal ports, 550
 — of mineral products, 535
 — of nursing stock, 500
 — of nuts, 500
 — of Philippine Islands, 267
 — to Philippines, 267, 551
 — of Porto Rico, 268
 — to Porto Rico, 268, 551
 — prices of, 539
 — ratio of, to imports, 548
 — restrictions on, removed, 359
 — to Russia, 346
 — of silver, 383, 535
 — to South America, 347
 — value of, 548
 — of vegetables, 500
 Express Companies, 556
 — rates, 556
 Extradition of Persons of Unsound Mind Act, Uniform, 273
FACTORY inspection, legislation on, 472
 Failures, business, 341, 349, 536, 537
 — foundation, 568
 Faith and Order movement, 739, 743, 746
 Family budgets, 403
 — Desertion Act, Uniform, 273
 — social status of, 404
 — Social Work, American Association for Organizing, 405
 Far Eastern Affairs, division of, 375
 Fargo, W. D., Scandinavian-American Bank of, 387
 Farm bureaus, county, 478
 — lands, price of, 482
 — Loan Act, amendments to, 497
 — Board, 195
 — system, Federal, 385
 — management, Office of, 198
 — reorganization of, 475
 — Organization, National Board of, 479
 — products, marketing of, 497, 498
 — standards for, 498
 Farms, financial returns of, 479
 — political influence of, 479
 Federal administration, 194-209
 — appropriations, 208
 — Air Raid Act, 308, 476
 — Board for Vocational Education, 807
 — Constitution. See Constitution.
 — Council of Churches of Christ, social work of, 436
 — courts, 208
 — employees, wages of, 466
 — salaries of, 210
 — Union, 211
 — expenditures, 364
 — finance, 50-54, 364-372
 — Government, Departments of, 194-200
 — health administration, 718
 — Horticultural Board, 491
 — appropriations for, 494
 — judiciary, 208
 — Federal Reserve Act, amendments to, 384, 385, 386
 — bank notes in circulation, 376, 377
 — banks, branch, 380
 — clearings, through, 382, 383
 — collections through, 382
 — discount rates of, 379, 380
 — earnings of, 380-382
 — rediscounts by, 381
 — relative condition of, 382
 — resources and liabilities of, 380, 381
 — Board, 199
 — notes in circulation, 375, 376
 — savings banks in, 378
 — state banks in, 378
 — revenues, 364, 365
 — Trade Commission, 199
 Federation of the Union of Russian workers, 59
 Feeble-minded, census of, 735
 — provision for, 428
 Feeders Supply Co. v. Chicago, Burlington & Quincy R. R. Co., 563
 Fellowships in French Universities, 811
 Ferrierite, 620
 Ferroalloys, 522
 — electrometallurgy of, 655
 Ferrocenium, 522
 Ferromanganese, production of, 521
 Fertilizer salesmen, courses for, 481
 Fertilizers, 480, 650
 — bacterIALIZED, 651
 — Federal standards for, 497
 — legislation on, 498
 Fiction, publications in, 774
 Fidelity insurance, statistics of, 400
 Field Artillery, Chief of, 196
 Finance, Federal, 50-54, 364-372
 — municipal, 239
 — statistics of, 259, 260
 — public, 50-54, 364-375
 — state and local, 372, 375
 — war, 365
 Fine Arts, Commission of, 200
 Finland, history of, 157
 — hostilities of, with Soviet Russia, 167
 Finnegan v. McBride, 288
 Fire blight of pears, 492
 — individual liability for, 252
 — insurance. See Insurance.
 — losses, statistics of, 394, 395
 — presentation, 252
 — Association, National, 252
 — Day, 252
 — protection, factory, legislation on, 472
 — in forests, 502
 — standards of, 253
 — Underwriters Excess Association, 395
 Fish culture, 506
 — Trust Case, decision in, 362
 Fisheries, 504-506
 — of Alaska, 262, 505
 — Bureau of, 199
 — Great Lakes, 505
 — Hudson shad, 504
 — New England vessel, 504
 — salmon, 505
 Fishes, fossil, 681
 Fitzgerald, John F., unseating of, 5
 Flume, issue of, in Italy, 155
 — occupation of, by d'Annunzio, 89, 155
 — problem of, in Peace Conference, 86-90
 — statement of President Wilson on, 88
 Flag Act, Uniform, 273
 — secret, 491
 Flags, anarchist, legislation on, 291
 Flat foot, prevalence of, 729
 Flaxseed price of, 344, 512
 — production of, U. S., 343, 509
 — world's, 506
 Flies, as disease carriers, 489
 Flint, Mich., Civic Building Association, 248

- Flood control, 307
 Florida Agricultural Experiment Station of, 477
 — archaeological investigations in, 733
 — citrus canker in, 492
 — citrus crop in, 499
 — constitution of, amendments to, 231
 — drainage-district, law of, 307
 — legislation in, on declaratory judgments, 274
 — on mother's pensions, 420
 Flotation process, 515, 520
 Flour, bleached, 646
 — price of, export, 539
 Flournoy, Richard W., 195
 Flower beetle, Japanese, 495
 Flowers, coloring matter of, 642
 Fluorine, chemistry of, 640
 Flying boats, navy, 592
 Flynn, Wm. J., 196
 Food Administration, dissolution of, 15
 — chemistry, 643-647
 — consumed by Army, 189
 — containers for, 647
 — control, 646
 — abolition of, 15
 — dealers, licensing of, 498
 — and Drug Control Act, enforcement of, 646
 — and Fuel Control Act, extension of, 19, 497
 — hoarding of, 18
 — inspection decisions, 646
 — poisoning, 647
 — saving, campaign for, 799
 — supplies, 645
 — warehouses, legislation on, 316
 — waste of, legislation on, 293
 Foods, arsenic in, 647
 — bacteriology of, 687
 — cold storage of, 497
 — misbranding of, decisions on, 646
 — standards for, 497, 498
 Foodstuffs, exports of, 549
 — imports of, 549, 551
 Ford Co., minimum wage in, 466
 Foreign Bond and Share Corporation, 360
 — Chronology, 830-835
 — currencies, purchase of, 366, 367
 — and Domestic Commerce, Bureau of, 198
 — exchange, rates of, 366, 383, 384
 — Governments, Loans to, 365, 366
 — history, 123-193
 — Insurance Association, American, 397
 — jurisprudence, 270-273
 — legislation, 270
 — mail service, 557
 — necrology, 845
 — Trade. *See* Commerce, Exports, and Imports.
 — Adviser, 195
 Forest engineers, war achievements of, 503
 — fires, 502
 — policy, national, 502
 — recreation, courses on, 415
 — resources, investigations of, 302
 — roads, appropriations for, 308
 — Service, 193
 — appropriations for, 476
 — trees, diseases of, 492
 Forestry, 501-503
 — in A. E. F., 566
 Forests, fire protection in, 476, 502
 — legislation on, 503
 — memorial, 503
 — national, 476, 503
 — ownership of, 502
 Forgery, decisions on, 295
 Forte, J. Franklin, 199
 Forty-eight, Committee of, 65, 66
 Fossils, 681
 Foundations, failures of, 568
 Foundry practice, 588
 France, American cemeteries in, 326
 — troops in, 328
 France, commitment of, on Shantung, 92
 — elections in, 152
 — engineering work in, A. E. F., 566
 — exports to, 548
 — geography of, 628
 — German cessions to, 98
 — coal deliveries to, 105
 — history of, 151
 — housing in, 251
 — imports from, 552
 — imports of American dairy cattle in, 484
 — money rates in, 356
 — music in, 765
 — naval strength of, 336
 — objections of, to League of Nations Covenant, 75
 — peace delegation of, 69
 — rebuilding of, 152, 761
 — sale of A. E. F. supplies to, 45, 366
 — socialism in, 439
 — transfer of Sarre Basin to, 94
 — treaty of alliance with, 10, 118
 Franchise, public-utility, law of, 275
 Franco, Manuel, 130
 Frank v. South, 290
 Frasch sulphur-mining process, 657
 Fraternal insurance, 392
 Frauds, statute of, 270
 Fraudulent Conveyance Act, Uniform, 273
 Free ports, 313
 — German, 107
 Freer, Charles L., art benefactions of, 753
 Freight-cars, 560
 — mechanical handling of, 312
 — rates, rulings on, 562-564
 — uniform classification of, 561
 French literature, 786
 — universities, fellowships in, 811
 French, Viscount, attack on, 147
 Frick, Henry Clay, art benefactions of, 753
 Friedrich, Stephen, 154, 155
 Fructose, optical properties of, 641
 Fruit, standards for, 293
 — trees, diseases of, 492
 Fruits, breeding of, 501
 — diseases of, 492
 — exports of, 500
 — imports of, 500
 — new, 500
 — production of, 499
 Fuel Administration, dissolution of, 15
 — revival of, in coal strike, 15
 Fuels, locomotive, 586
 — motor, 584, 658
 — new, 582
 — production of, 531, 532
 Full-crew laws, 472
 Fungi, 492, 686
 Fungicides, 493, 499
 Futures, cotton, 360
 — trading in, 359
 GALICIA, Eastern, mandate of
 — Poland over, 158
 — hostilities in, 165
 Gall midges, 680
 Gallium, chemistry of, 639
 Galloway, Charles M., 200, 210
 Galls, insect, 680
 Gambling houses, legislation on, 293
 Game laws, 292
 — preserves, 503
 Garbage disposal, 319, 571
 Garden Army, U. S. School, 799
 Garvan, Francis P., 15, 196
 Gary, Elbert H., labor policies of, 24
 Gas masks, industrial, 656
 — natural. *See* Natural Gas.
 — rates, 318
 — turbines, 585
 — warfare, 192, 643, 656
 Gaskill, Nelson B., 199
 Gasoline, road tax on, 311
 — storage of, for A. E. F., 566
 — used by Army, 189
 Gelatin, optical properties of, 644
 General Staff, Army, 324
 Generators, electric, 575
 Genes, nature of, 667
 Genetics, 666
 Geodetic and Geophysical Union, International, 622, 629
 Geographical news service, 800
 — research, explanation and, 632-636
 Geography, 626-629
 — of France, 628
 — physical, 626-629
 — regional, 628
 — state publications on, 303
 Geological Survey, U. S., 197
 — activities of, 298
 — publications of, 616
 — surveys, state, 300-303
 Geology, 615-636
 — of Alaska, 616, 617
 — of Canada, 617
 — commercial, 299
 — dynamical, 615-617
 — economic, 300, 617-619
 — glacial, 615
 — paleontological, 301, 681
 — of South America, 617
 — stratigraphic, 301
 — structural, 615-617
 — of U. S., 616
 Geophysical Union, International
 — Geodetic and, 622, 629
 Georgia, automobile licences in, 374
 — constitution of, amendments to, 231
 — feeble-mindedness in, 421
 — legislation in, on cattle-tick eradication, 489
 — on education, 802
 — prohibition enforcement in, 276
 — State College of Agriculture, veterinary course at, 488
 — tax inquisitors in, 374
 — taxation in, of insurance premiums, 372, 373
 — of inheritances, 373, 374
 — of property, 374
 General Land Office, 197
 — Staff, Army, 196
 German bridgeheads, occupation of, 109
 — cables, seizure of, 103
 — surrender of, 105
 — chemical patents, sale of, 542
 — colonies, disposal of, 77
 — Peace Treaty provisions on, 101
 — colonization in Latin America, 124
 — constitution, Austrian provisions in, 112
 — copyrights, sale of, 542
 — fleet, sinking of, 110, 111
 — missions, Peace Treaty provisions on, 741
 — music in U. S., 764
 — Peace Treaty. *See* Peace Treaty
 — propaganda in Latin America, 124
 — rivers, international, 108
 — trademarks, sale of, 542
 — Germanic languages and literatures, 784-786
 Germanium, chemistry of, 639
 Germany, acceptance of Peace Treaty by, 96
 — air force permitted to, 103
 — American forces in, 328
 — Armies of Occupation in, 105, 328
 — boundaries of, 97, 98
 — maps of, 631
 — Cabinet of, 153
 — conscription in, 102
 — constitution of, 153
 — conventions and treaties with, 106
 — debt of, pre-war, 105, 106
 — effects of war diet in, 643
 — exports to, 548
 — finance in, 153
 — fortifications in, 102
 — history of, 152

INDEX

Germany, hostilities of, with Latvia, 166
 — with Poland, 165
 — with Soviet Russia, 167
 — military force permitted to, 102
 — money rates in, 356
 — music in, 765
 — National Assembly of, 153
 — naval force permitted to, 102
 — naval strength of, 336
 — Peace Treaty with. *See* Peace Treaty, German
 — relations of, with Poland, 86
 — reparation demanded of, 103
 — shipping surrender by, 104, 546
 — steel production in, 522
 — tariffs of, 106
 — territorial losses of, 97
 — zinc industry in, 527
 Giardiasis, treatment of, 677
 Gifts, law of, 271
 Gilboa Dam, 570
 Gillett, Frederick H., 3
 Gilmer, Capt. Wm. W., 263
 Gismonda, opera, 764
 Glacial deposits, geology of, 615
 Glass, Carter, 195
 Glass, optical, production of, 544
 — price of, export, 539
 Glassware, chemical, production of, 544
 Gleaves, Adm. Albert, 332
 Glidewell v. Murray Lacy & Co., 287
 Globular clusters, 614
 Glucose, optical properties of, 641
 Glucuronic acid in plants, 685
 Goats, slaughtered, 485
 Gold and silver, 519-521
 — certificates in circulation, 375
 — coin in circulation, 375
 — deposits, geology of, 618
 — exports of, 356, 383, 535, 548
 — control of, 384
 — imports of, 356, 535, 551
 — metallurgy of, 520
 — mining, 519, 520
 — movements of, 357
 — production of, 519, 531, 532
 — in U. S. by states, 533
 — Settlement Fund, clearings through, 382
 — stock of, in U. S., 375
 — world's colnage of, 530
 Goldman, Emma, 60
 Goltz, General von der, 157, 166, 167
 Gomez, Juan Vicente, 132
 Gompers, Samuel, 447
 Good Budget bill, 54
 Gooseberry mildew, 492
 Government, county, 236
 — Employees. *See* Public employment
 — Federal, 194-209
 — insurance for soldiers and sailors, 391
 — municipal, 237-260
 — ownership, attitude of labor towards, 453
 — of railroads, 34, 450
 — of wire systems, 41
 — Printing Office, 200
 — Research, Institute of, 227
 Governmental Research Conference, 240
 Governors, state, conference of, on unemployment, 443
 — — on reconstruction, 223
 — powers of, 223, 224
 — table of, 215, 216
 — steam-engine, 582
 — territorial, table of, 216
 — water-turbine, 585
 Grain Corporation, U. S., 15
 — Exchanges, uniform contract of, 361
 — threshers, licensing of, 498
 Grand Canyon, Ariz., plan of, 241
 — Trunk Railway systems, 135
 Granstein, Ida S., v. Boston & Maine R. R., 562
 Grasshoppers, eradication of, 292
 Gratiot County Bank v. Johnson, 287
 Graves, investigations of, 300
 Graves, Peace Treaty provisions on, 103

Graves, Gen. Wm. S., 327
 Gravitation, Einstein's theory of, 660
 Gray v. Whittia, 279
 Great Britain, by-elections in, 139
 — Cabinet of, 139
 — coal strike in, 142
 — commitment of, on Shantung, 91, 92
 — condemnation procedure in, 243
 — Dominions of. *See* British Dominions, 132
 — education in, 142
 — educational mission from, 810
 — elections in, 138
 — exports to, 548
 — food rationing in, 145
 — housing in, 251
 — hostilities of, with Soviet Russia, 168
 — imports from, 552
 — industrial councils in, 144
 — courts in, 142, 144
 — legislation in, 144
 — relations in, 142
 — Irish problem of, 145
 — Judicial decisions in, 270
 — Labor party in, 140, 439
 — troubles in, 142
 — League of Nation's plan of, 74
 — legislation in, 142, 270
 — money rates in, 356
 — municipal elections in, 143
 — music in, 765
 — National Industrial Conference in, 144
 — nationalization of mines in, 143
 — naval strength of, 336
 — overseas dominions of, 147
 — Parliament of, parties in, 140
 — peace delegation of, 69
 — politics in, 140
 — prices in, 357
 — public debt of, 141
 — railroad standardization in, 587
 — strike in, 143
 — relations of, with Chile, 126
 — revenues and expenditures of, 140
 — shipping loss of, 546
 — Socialism in, 439
 — tariff preferences in, 142
 — taxation in, 141
 — treaty of, with Persia, 119
 — zinc industry in, 527
 Great Lakes, fisheries of, 505
 — navigation of, by ocean shipping, 312
 — shipping on, 546
 Great Northern Railway, electric operation of, 576
 Great Northern Ry. Co. v. Johnson, 289
 Great War. *See* European War
 Greece, archaeological research in, 763
 — history of, 159
 — hostilities of, with Turks, 168
 Greek literature, 788-790
 Greely Commercial Club v. Colorado & Southern R. R. Co., 563
 Green Shipping bill, 547
 Greene electric furnace, 654
 Greenland, explorations in, 634
 Greens and marl, potash from, 301, 481
 Grew, Joseph C., 195
 Grossman's Estate, *in re*, 289
 Guam, 263
 — agriculture in, 263
 — bank deposits in, 263
 — commerce of, 264
 — education in, 263
 — exports of, 264
 — exports to, 551
 — health conditions in, 264
 — imports of, 264
 — militia of, 263
 — population of, 263
 — roads in, 263
 Guards, U. S., in war, 173
 Guatemala, history of, 128
 Gun salt transference, 691, 699
 Gun steel, 523
 Gutiérrez, Gen. López, 128

Gutiérrez, José Nestor, 125
 Gypsum, properties of, 603
 Gypsy moth, 495
 HABIBULLAH Khan, assassin—nation of, 163
 Hahn v. D. L. & N. Ry., 286
 Hail insurance, 498
 Haiti, history of, 123
 — surveys in, 299
 Halsey, Adm. A. S., 340
 Hamilton v. Madison Water Co., 284
 Hand, *in re*, 287
 Handicrafts, 756
 Handley-Page airplane, 594
 Hanford v. Conn. Fair Association, 280
 Hangars, airship, 338
 Hannan Memorial Hall, 414
 Hannevig, Cristoffer, art benefactions of, 753
 Hapsburg dynasty abolished, 151
 Harbor developments, 313, 571
 — engineering, 312
 — workers, strikes of, 22, 312, 453
 Harbors, waterways and, 313
 Harris on Narcotics Act, constitutionality of, 276
 Harvard Observatory, photographic library of, 609
 — University, Fogg Museum of, 754
 Hawaii, 264
 — agriculture in, 265
 — bank deposits in, 264
 — commerce of, 265
 — education in, 264
 — exports of, 265, 551
 — exports to, 551
 — harbor improvement in, 264
 — health conditions in, 264
 — imports from, 552
 — legislation in, 264
 — on agricultural credit, 498
 — on dependent children, 420
 — leprosy in, 265
 — National Guard of, 264
 — pineapple production of, 500
 — population of, 213, 264
 — prohibition in, 264
 — University of, 264
 Hawker, Harry G., Atlantic flight of, 596
 Hay, price of, 344, 512
 — production of, 343, 474, 509
 — by states, 510
 Headlights, locomotive, electric, 578
 Health, administration, Federal, 718
 — centers, movable, 419
 — Red Cross, 717
 — conditions in U. S. Army (*see also* Army), 711
 — Conference, Red Cross, 716
 — Council, National, 716
 — department, state, 717
 — education, 805
 — insurance, 464
 — statistics of, 399
 — workmen's, 469
 — officers, district, 717
 — organizations, unofficial, 716
 — public, 711-718
 — relation of standards of living to, 403
 Heat, physics of, 661
 Heating, electric, 579
 Hebe Co. et al. v. Norman E. Shaw et al., 647
 Hedjaz, history of, 163
 Hegeman, John R., 392
 Helligoland, Peace Treaty provisions on, 100
 Hellum, commercial production of, 597
 Heparin, 692
 Herbring v. Browne, 277
 Heredity, 667
 — relation of environment to, 670
 Herman v. Powers Co., 279
 Hernia, prevalence of, 729
 Hetch Hetchy Dam, 570
 Hexosaminic acids, 642
 Hides, imports of, 537

INDEX

- Highway building in Canada, 134
- departments, state, 311
- engineering, 311
- materials, investigations of, 302
- tunnels, 570
- Highways (*see also* Roads), 308—
- convict labor on, 434
- Hire-purchaser, status of, 271
- Histology, 671
- History, American, 1-68
- foreign, 123, 193
- Hitchcock, Senator, G. M., 3
- Hittite script, decipherment of, 793
- Hobson v. City of Richmond, 274
- Hoegbomite, 620
- Hog cholera, 489
- serum, 498
- industry, 487
- Hogs, garbage feeding to, 319, 572
- price of, 486, 487, 512
- slaughtered, 485
- statistics of, 513
- thumps in, 490
- Holland. *See* Netherlands.
- Home builders, state aid to, 248
- economies, education in, 799
- extension work in, 478
- rule, county, 235
- Ireland, 146, 147
- municipal, 239
- service of Red Cross, 411
- Homestead entries, legislation on, 296
- Homicide, justifiable, decisions on, 295
- Honduras, history of, 128
- Honolulu harbor, improvement of, 264
- Hoover, Herbert C., 15, 17
- Hops, price of, 512
- production of, U. S., 509
- world's, 506
- by principal countries, 507
- Horse industry, 486
- meat, inspection of, 490
- Horses, cerebrospinal meningitis in, 490
- influenza in, 489
- price of, 512
- statistics of, 513
- Horticultural Board, Federal, 491
- Federal, appropriations for, 494
- Horticulture, 499-501
- Hospital cases in A. E. F., disposition of, 183
- social service, 413
- Hospitalization in A. E. F., 183
- Hospitals, A. E. F., construction of, 566
- Hotel Pennsylvania, New York City, 761
- House of Representatives, 66th Congress, committees of, 3, 206
- members of, 204-206
- organization of, 2
- Republican programme in, 2
- Speaker of, 3
- Housing, 246-251
- Association, National, 256
- bibliography of, 247
- in Canada, 134, 250
- Corporation, U. S., projects of, 249, 250
- Federal Government and, 249
- in France, 251
- in Great Britain, 251
- and Living Conditions, proposed Federal Bureau of, 250
- projects, 247, 762
- shortage in, 246
- and Transportation, Industrial, Bureau of, 199
- War development of, 572
- Houston, David Franklin, 195
- Houston v. Burns, 272
- Hudson Bay Railway, 135
- Hudson River shad fishery, 504
- Humbert, Senator, court-martial of, 152
- Humphreys Godwin Co. v. Vicksburg, etc., Ry. Co., 562
- Hungary, Bolshevik Government of, 154
- Cabinet of, 154
- history of, 154
- hostilities of, with Czechoslovakia, 154
- with Rumania, 115, 154, 164
- Hurley, Edward N., 199
- Husband and wife, law of, 289
- Huszar, Karl, 155
- Hydraulic engineering, 585
- Hydrocarbons, chemistry of, 641
- Hydro-Electric Power Commissioners of Ontario, turbo-generators of, 575
- Hydrographic Conference, International, 629
- Office, charts of, 630
- Hygiene, mental, 421, 424-430
- public, 711-718
- social, 422-424, 714, 806
- ICE cream, consumption of, 454
- patrol, international, 630
- Idaho, administrative consolidation in, 225, 226
- Department of Law Enforcement of, 226
- of Agriculture of, 483, 499
- of Reclamation of, 304
- drainage law of, 307
- forest fires in, 502
- legislation in, on irrigation, 304
- on drainage, 306
- silver mining in, 520
- Illegitimacy, legislation on, 420
- Illinois, areal surveys in, 301
- blue-sky law of, 362
- Board of Equalization of, 224
- coal investigations in, 300
- Constitutional Convention of, 223, 230, 231
- Deep Waterway, 570
- Department of Public Welfare of, 405
- executive budget in, 227
- fuel investigations in, 302
- geological investigations in, 301
- Health Insurance Commission, report of, 464
- highway materials in, 302
- legislation in, on civil service, 212
- on illegitimacy, 420
- on zoning, 245
- municipal home rule in, 239
- oil investigations in, 300
- Pension Laws Commission, report of, 465
- road bond issue of, 226, 308
- state hospitals of, 405
- criminologist of, 429
- strike of coal miners in, 460
- Tax Commission of, 224
- Topographic maps of, 302
- Illinois v. Fernow, 293
- Illiteracy in draft army, 803
- state provision for, 804
- Illumination, electric, 578
- Immigrants, distribution of, 441
- Immigration, 440-442
- into Alaska, 261
- attitude of labor towards, 449
- Bureau of, 199
- Chinese, 442
- effect of war on, 440
- legislation on, 441
- restriction of, 61
- statistics of, 440
- Imports of agricultural products, 511
- from Alaska, 263, 552
- of Alaska, 262
- of coconut butter, 500
- from dependencies, 552
- of foodstuffs, 549, 551
- from foreign countries, 551, 552
- of fruits, 500
- of gold, 535, 551
- Government control of, 553
- of Guam, 264
- from Hawaii, 552
- of Latin America, 123
- of manganese ore, 521
- of manufactures, 549
- of merchandise, 341, 346
- by classes, 549
- Imports of merchandise, by continents, 551
- by groups of ports, 552
- by principal countries, 552
- by principal ports, 552
- of mineral products, 535
- of nursery stock, 500
- of nuts, 500
- Imports of peanut oil, 500
- from Philippines, 267, 552
- of Philippine Islands, 267
- from Porto Rico, 268, 552
- of Porto Rico, 268
- of potash, 541
- ratio of, to exports, 548
- of raw materials, 537
- restrictions on, removed, 359
- of silver, 535, 551
- value of, 551
- of vegetables, 500
- Incarescent lamps, 578
- Income, statistics of, 737
- tax, Federal, 369-371
- taxes, state, 373
- decisions on, 276
- Incorporations, 341, 355
- Indebtedness, certificates of, Treasury, 368, 369
- Independent Artists, Society of, 754
- Indeterminate sentences, 432
- Index numbers, 342, 357, 467, 738
- India, invasion of, by Afghans, 148
- political conditions in, 147
- self-government plan for, 148
- Indian Affairs, Office of, 197
- American, Museum of, 733
- anthropology, 731
- lands, receipt from sales of, 298
- Village Education, Commission on, 812
- Indiana, Agricultural Experiment Station of, 477
- appointment of state officers in, 224
- appropriations in, for public health, 717
- constitution of, amendments to, 226, 231
- Department of Conservation of, 306, 499
- legislation in, on budget system, 226
- on dependent children, 420
- on industrial safety, 472
- on memorial forests, 503
- on physical education, 805
- on social insurance, 470
- public employment offices in, 471
- social insurance in, 465, 469
- Tax administration in, 374
- taxation of property in, 374
- Teachers' salaries in, 808
- Indo-European philology, 793-794
- Industrial Board, U. S. Department of Commerce, 16
- buildings, construction of, 568
- chemistry, 655-659
- clinics, 466
- Commission, report of, 449
- Conference, National, 28, 461, 479
- President's, 30
- councils in Great Britain, 144
- Joint, 461
- courts, British, 142, 144
- cripples, rehabilitation of, 464, 469, 470
- diseases (*see also* Occupational diseases), compensation for, 716
- gas masks, 656
- housing, projects for, 762
- and Transportation, Bureau of, 199
- insurance, 392
- investigations, state, 473
- libraries, 818
- psychology, 728
- Relations Commission of Canada, 136
- safety, legislation on, 472
- investigations of, 465
- welfare, 465, 472
- Workers of the World, 59, 451
- Inebriates, census of, 735

- Infant mortality, 419
- welfare, conditions of, 418
- Infants, protection of, standards for, 418
- Infectious diseases in U. S. Army, 711
- Influenza, epidemic of, 712
 - in Alaska, 2
 - insurance claims from, 388, 389
 - in Philippines, 266
 - in Porto Rico, 268
 - epidemiology of, 700, 712
 - equine, 489
 - etiology of, 694
 - in U. S. Army, 698
- Inheritance, Mendellian, 667
- taxes, Federal, 370
- state, 373, 374
- Initiative, status of, 229
- Injunction, law of, 288
- Injunctions in coal strike, 27, 459
- in labor disputes, 288, 469
- Inland waterways. *See* Waterways.
- Inman v. Home Telephone & Telegraph Co., 281
- Innkeepers, law of, 271
- Insane, census of, 735
- Inscriptions, 790, 795
- Insect galls, 680
- Insecticide Act, enforcement of, 494
- Insecticides, 494, 495, 496
 - inspection of, 499
- Insects, wings of, 679
- Inspector-General, Army, 196
- Institute for Government Research, 227
- of International Education, 812
- of Phytopathological Research, 491
- Insular Affairs, Bureau of, 196
- Insulation, electrical, research on, 579
- Insurance, accident, statistics of, 399
 - agricultural, 498
 - Association, American Foreign, 397
 - casualty, statistics of, 397, 398
 - companies, taxation of, 372
 - employers liability, 398
 - fidelity, statistics of, 400
 - fire, rates of, 394
 - surcharge in abrogated, 395
 - statistics of, 393-395
 - fraternal, 392
 - health, 464, 469
 - statistics of, 399
 - industrial, 392
 - life, 388-392
 - companies, securities held by, 391
 - statistics of, 390
 - effect of influenza epidemic on, 388, 389
 - effect of war on, 389, 390
 - Government, for service men, 391
 - new issues of, 389
 - policies, surrenders, lapses, loans, and dividends of, 390
 - dividends on, 391
 - marine, 389
 - Congressional investigation of, 398
 - statistics of, 393, 394, 397, 398
 - miscellaneous forms of, 400
 - premiums, taxation of, 373
 - property and casualty, 393-400
 - riot and civil commotion, 395, 396
 - social, 464, 469
 - surety, 400
 - statistics of, 397, 398
 - War-Risk, Bureau of, 196
 - for soldiers and sailors, 391
 - workmen's-compensation, 398, 399, 470, 716
 - National Council on, 398, 399
- Intelligence, tests of, 425
- Inter-Allied Reparation Commission, 103, 113
- Town Planning Conference, 252
- Interborough Rapid Transit Co., turbo-generators of, 575, 581
- Interchurch World Movement, 739, 743, 747
- Interdepartmental Social Hygiene Board, 423, 806
- Interior, Department of, 197
- Secretary of, 197
- Internal-combustion engines, 583, 594
- Internal Revenue, Bureau of, 195
- International Astronomical Union, 609
 - boundaries, new, maps of, 630
 - Conference of Working Women, 449
 - Congregational Council, 740
 - disputes in League of Nations, 76, 79
 - Education, Institute of, 812
 - Geodetic and Geophysical Union, 622, 629
 - Hydrographic Conference, 629
 - ice patrol, 630
 - Institute of Anthropology, 730
 - Justice, Court of, 77
 - Labor Bureau, 448
 - conferences, 108, 109, 447, 448, 449
 - legislation, 109, 447
 - Peace Conference Commission on, 70
 - Office, 108, 109
 - organization under League of Nations, 108
 - and Socialist Conference, 447
 - Paper Co. v. Grace D. Chambers, 277
 - relations, 69-122
 - educational, 796, 810-813
 - labor, 447-449
 - of Latin America, 123
 - of U. S., with Brazil, 126
 - with Colombia, 127
 - with Dominican Republic, 127
 - with Mexico, 120, 129
 - with Uruguay, 132
 - with Venezuela, 132
 - Research Council, 629, 664
 - rivers, German, 108
 - Selsmological Association, 622
 - Trade-Union Bureau, 447
 - Conference, 447
 - White-Pine Blister Rust Conference, 491
 - Workers' Defense League, 451
- Interstate Commerce Commission, 32, 199
 - control of railroads by, 38
 - rulings of, 562-564
 - judicial decisions on, 275
- Inventions, electrical, 578
- Invertebrate zoology, 676-679
- Investigation, Bureau of, Department of Justice, 196
- Iodine compound, chemistry of, 641
 - physiological function of, 675
- Iowa, anti-tipping law of, 295
- constitution of, amendments to, 231
- school attendance campaign in, 798
- state parks in, 762
- taxation of banks in, 373
- Ireland, home rule for, 146, 147
- political conditions in, 145
- Republic of, 145
- Sinn Fein activities in, 145
- visit of Walsh and Dunne to, 145
- Irish loan in U. S., 146
- Iroquoian, Hipolito, 124
- Iron and steel, 521-525
 - deposition of, by bacteria, 619
 - duplex, 525
 - electro metallurgy of, 525
 - exports of, 535, 550
 - Industry, 521, 536
 - manufactures, exports of, 538
 - metallurgy of, 522
 - ore, production of, 521, 531, 532
 - by states, 533
- Iron, pig. *See* Pig iron
 - price of, export, 539
 - resources, investigations of, 300
 - trade, 344
- Irrigated lands, drainage of, 304, 306
- Irrigation, 303
 - construction, 303
 - investigations, appropriations for, 304
 - in Porto Rico, 267
 - projects, crops produced on, 303
 - status of, 304
- Isotacy, 615
- Isotopes, separation of, 660
- Italian literature, 788
- Italy, ambitions of, in Asia Minor, 90
 - American troops in, 328
 - archaeological research in, 763
 - Austrian territory ceded to, 112
 - Cabinet of, 155
 - claim of, to Fiume, 86
 - ethnographic map of, 332
 - exclusion of, from French alliance, 119
 - Fiume issue in, 155
 - history of, 155
 - imports from, 552
 - naval strength of, 336
 - peace delegation of, 69
 - relations of, with Jugo-Slavia, 86
 - Socialism in, 156, 440
- JACKSONVILLE, steel bridge at, 569
- Jaina religion, 794
- Japan, diplomacy of, in Peace Conference, 92
 - exports to, 347
 - history of, 163
 - immigration from, 441
 - legal status of, in Shantung, 91
 - naval strength of, 336
 - objections of, to League of Nations Covenant, 75
 - opera in, 765
 - peace delegation of, 69
 - promise of, to restore Shantung, 92
 - racial equality, demands of, 75
 - relations of, with China, 90
 - secret treaties of, with Allies, 90
 - transfer of Shantung to, 90
 - Japanese flower beetle, 495
 - Jenkins, Wm. O., imprisonment of, 121, 129
- Jewish organizations, American, 751
- Jews, persecution of, 750
 - protection of, in Poland, 85
 - war service of, 751
- Johnston, Charles M., 195
- Johnston v. Atherton Mills, 463
- Johnston v. Kuipe, 280
- Joint councils, industrial, 461
- wrongdoers, law of, 282
- Jones v. Sioux City, 283
- Josef, Archduke, of Hungary, 154
- Journal of Industrial Hygiene, 718
- Juarez, relief of, by U. S. troops, 120
- Judaism, 750-752
- Judge-Advocate-General, Army, 196, 325
- Navy, 197
- Judgments, declaratory, 273
- Judicial decisions (*see also* subjects), 307, 362, 564, 462-464
 - American, 274
 - criminal law, 294-295
 - foreign, 270
 - Judiciary, Federal, 208
 - statute of, 219-221
- Jugo-Slavia, history of, 160
 - hostilities of, with Austria, 164
 - recognized by Austria, 112
 - by Bulgaria, 117
 - refusal of, to sign Austrian Treaty, 115
 - relations of, with Italy, 86
 - signature of Bulgarian Treaty by, 117

Julliard, A. D., music benefactions of, 764
 Junior Red Cross, 798
 Jurisprudence, American, 273-295
 — foreign, 270-273
 Jurors, disqualification of, 287
 Justesen v. Pennsylvania Ry., 286
 Justice, Department of, 196
 — activities of, against Bolshevism, 60
 — campaign of, against profiteering, 18
 Justifiable homicide, decisions on, 295
 Juvenile courts, 420, 429
 — delinquency, effect of war on, 431

K KAISER WILLIAM II, indictment of, 103
 Kalamazoo, playground in, 415
 Kane v. Brotherhood of Railroad Trainmen, 277
 Kanred wheat, 478
 Kansas, constitution of, amendment to, 231, 493
 — food labeling law of, 647
 — horse disease, 490
 — irrigation in, 304
 — legislation in, on agricultural credit, 498
 — on illegitimacy, 420
 — on workmen's compensation, 470
 — Mental Hygiene Commission of, 421
 — municipal home rule in, 239
 — taxation in, of banks, 373
 — of inheritances, 373
 — water resources of, 304
 Kansas Car-Lot Egg-Shippers Association v. Baltimore & Ohio R. R. Co., 563
 Kansas City, home rule in, 239
 — municipal ice plant of, 317
 Karl, Emperor, 151
 Karolyi, Count Michael, 154
 Kavañan v. Seattle Baseball Association, 285
 Kavanaugh v. Kavanaugh Knitting Co., 280
 Kays v. Little, 279
 Keane v. Moore, 272
 Kellar v. City of Los Angeles, 283
 Kelp, potash from, 650
 Kennedy, Philip B., 198
 Kentucky, areal surveys in, 301
 — coal investigations in, 300
 — constitution of, amendments to, 231, 232, 438
 — elections in, 64
 — geological investigations in, 301
 — illiteracy in, 804
 — legislation in, on drainage, 306
 — prohibition issue in, 438
 Kenyon Americanization bill, 804
 Kiao-Chau. See Shantung.
 Kiel Canal, Peace Treaty provisions on, 108
 Kindergartens, 814
 King, W. L. Mackenzie, 138
 King v. Harriger, 288
 Knapp, Adm. Harry S., 340
 Knights of Columbus, war work of, 745.
 Knox, Senator P. C., resolution of, declaring peace, 13
 Kolchak, Admiral, military operations of, 156, 157, 167
 — negotiations of Peace Conference with, 83
 Komme, L., & Son v. Champlain Transportation Co., 278
 Kopff's Comet, 612
 Korea, history of, 163
 Kun, Bela, 154
 Kunz v. Allen, 286
 Kunsberg v. Georgia, 276
 Kurdistan, Kingdom of, 164

L LABOR, 447-468
 — American Federation of (see also American Federation), 447
 — attitude of, towards Bolshevism, 31
 — conference of, 31

 — Labor, American Federation of, demands of, 22, 31
 — —unemployment programme of, 443
 — attitude of, towards Government ownership, 453, 450
 — towards immigration, 449
 — towards Peace Treaty, 451
 — towards prohibition, 450
 — Board War. See War Labor Board.
 — Bureau, International, 448
 — child (see also Child labor), 469
 — standards for, 471
 — legislation on, 418
 — taxation of products of, 463
 — collective bargaining by, 462
 — conditions, effect of, on building, 565
 — Conference, International, 108, 109
 — conferences (see also Industrial Conference), American, 461
 — —International, 447, 448, 449
 — Congress, national, 451
 — contracts, enforcement of, 473
 — damages assessed on, 462
 — demands of, 22, 31
 — Department of, 199
 — Bureau of Housing, and Living Conditions in, 250
 — Industrial Commission of, 449
 — mediation by, 460
 — war bureaus of, 465
 — disputes (see also Strikes and Lockouts), 453-460
 — injunctions in, 288, 459, 469
 — mediation in, 460-462, 473
 — educational programme of, 802
 — equal, equal pay for, 469
 — hours of, 466, 469
 — effect of war on, 580
 — legislation on, 470
 — International relations of, 447-449
 — joint councils of, 461
 — judicial decisions affecting, 462-464
 — laws, administration of, 472
 — legislation, 469-473
 — constitutionality of, 463
 — —International, 109, 447
 — —Peace Conference Commission on, 70
 — Office, International, 108, 109
 — organization, International, under League of Nations, 108
 — organizations, 450-453
 — —conference of, 31
 — organized, support of Plumb plan by, 35
 — Pan-American Federation of, 449
 — parties, 452
 — Party, National, 65, 453
 — Peace Treaty provisions on, 108, 109, 447
 — policies of President Wilson, 21
 — prison, 433
 — problems, Canadian Royal Commission on, 136
 — psychology of, 403
 — as a reconstruction problem, 21
 — relation of Federal Administration to, 21-31
 — safety of, legislation on, 472
 — Secretary of, 199
 — social problem of, 402
 — and Socialist Conference, International, 447
 — Statistics, Bureau of, 199
 — unions, in American Federation, 450
 — —educational movements of, 452
 — —legal status of, 469, 473
 — liability of, 282, 462
 — teachers', 809
 — wages of, 466
 — welfare of, 465
 — legislation on, 472
 — under League of Nations, 81
 — women's, 469
 — legislation on, 470
 — standards for, 449

La Follette, Senator R. M., charges of disloyalty against, 2
 Lamb and Mutton, Exports of, 485
 — production of, 485
 Lamb, price of, 486
 La Nave, opera, 764
 La Retne Fiammette, opera, 764
 La Rosa v. Nichols, 278
 Land banks, Federal, 385
 — joint-stock, 385
 — for soldiers, 446
 — Registration Act, Uniform, 273
 Landler, Eugen, 154
 Landlord and tenant, law of, 279
 Landscape Architects, American Society of, 761
 — architecture, 761-762
 Lane, Franklin K., 197
 Langmuir, I., electron theory of, 640
 Languages, English, 778
 — German, 784
 — Lithuanian, 794
 — Romance, 786-788
 — Semitic, 793
 Lansing, Robert, 194
 — testimony of, on Peace Conference proceedings, 10
 Larkin Co. v. Erie Railroad Co., 563
 Latin America (see also countries by name), 123-132
 — exports to, 347
 — German propaganda in, 124
 — international relations of, 123
 — trade of U. S. with, 123
 Latin-American Affairs, Division of, 195
 Latin inscriptions, 790, 795
 — literature, 790-792
 — philology, 795
 Latvia, hostilities of, with Baltic Barons, 166
 — with Germans, 166
 — with Soviet Russia, 165
 Laurier, Sir Wilfrid, 138
 Law, criminal, 291-294
 — enforcement, state departments of, 226
 — and jurisprudence, 270-295
 Lawrence, Mass., strike, of textile workers in, 454
 Laws, state, uniform, 273
 Lead, 525-527
 — industry, condition of, 525
 — metallurgy of, 526
 — ores, treatment of, 526
 — poisoning, 526
 — price of, 514
 — production of U. S., 531, 532
 — —by states, 533
 — —world's, 528
 — —by principal countries, 529
 — refining, 527
 — resources, investigations of, 301
 — smelting of, 526
 League of Nations, 7, 73-82
 — adhesions to, 82
 — arbitration in, 76, 79
 — armament reduction in, 79
 — Assembly of, 76, 78
 — attitude of labor towards, 451
 — balance of power and, 76
 — British Dominions in, 133, 150
 — British plan for, 74
 — Commission on, 70, 73
 — control of Austria under, 113
 — control of treaties by, 81
 — Council of, 75, 78
 — Court of International Justice of, 77
 — Covenant, amendments to, 82
 — adoption of, by Peace Conference, 74
 — —in Austrian Treaty, 115
 — final draft of, 74
 — first draft of, 73
 — framing of, 7, 73, 75
 — Monroe Doctrine and, 8, 81
 — objections to, 75
 — ratifications of, 82
 — in state political conventions, 64
 — text of, 77
 — in U. S. Senate, 7

INDEX

- League of Nations, Danzig under, 86
 — diplomatic immunities in, 78
 — education in, 813
 — enforcement of rulings by, 80
 — French alliance under, 118
 — international bureaux under, 82
 — — disputes in, 76, 79
 — — functions of, 81
 — — labor organization under, 108
 — labor welfare under, 81, 448
 — mandates under, 77, 81
 — meetings of, 78
 — members of, 76, 77, 82
 — military power of, 80
 — origin of, 73
 — Polish guarantees under, 85
 — prevention of war by, 77, 79
 — public-health work under, 716
 — Red Cross under, 82
 — Sarre Basin under, 94, 99
 — seat of, 75, 78
 — secretariat of, 78
 — Secretary-General of, 82
 — states excluded from, 76
 — territorial guarantees in, 79
 — withdrawal from, 78
 League of Red Cross Societies, 401, 411, 716
 Leather industry, 540
 Lebedassite, 620
 Legal cause, tests of, 286
 Legend, opera, 764
 Legislation (see also under subjects, states, and countries), foreign, 270
 — state, uniform, 273
 Legislatures, state, in session, 372
 — state and territorial, table of, 217, 218
 Legula, Augusto, 130
 Lehigh Valley Railroad, terminal project of, 313
 Lemon, fruit cycles of, 686
 Lenine, Nicolas, 156
 Lepère airplane, 591
 Leprosy in Hawaii, 265
Leptosira icteroides, 693
Le Retour, opera, 765
 Lerner, Baron Kurt von, 111
 Leucocytes, 686
 Lever, Asbury F., 195
 Lewis v. Thomas, 271
 Liability, limiting, law of, 279
 Liasonoff, Stefan, 157
 Libel, law of, 235
 Liberia, Peace Treaty, provisions on, 101
 Liberty bonds, conversion of, 367, 368
 — — exemption of, from taxation, 367
 — — prices of, 368
 — — retirement of, 368
 — Loan Act, 366
 — — Victory, 367
 — — sinking fund for, 368
 — motor, 583
 Librarians, appointments of, 818
 Libraries, 816-818
 — effect of war on, 816
 — industrial, 818
 — legislation affecting, 818
 — publicity by, 817
 Library Association, American, 816, 817
 — buildings, 817
 Liebknecht, Karl, 152
 Life insurance. See Insurance.
 Light, polarization of, 661
 — scattering of, 661
 — velocity of, 660
 Lighthouses, Bureau of, 198
 Lighting, electric, 318, 578
 — gas, 318
 — street, 578
 Lightning arresters, 575
 Lignite resources, investigations of, 300
 Lime juice, antiscorbutic value of, 705
 Limestones, investigations of, 300
 Limited Partnership Act, Uniform, 273
 Limiting liability, law of, 279
 Lincoln, George G. Barnard's statue of, 755
 Lindsey, Ben., contempt case against, 288, 421
 Lindsley, D. L., 196
 Linke-Hoffman airplane, 593
 Liquidation Commission, Army, 45
 Liquor problem, 437
 — transportation of, decisions on, 294
 Literature, American, 773-778
 — Dutch, 786
 — effect of war on, 775
 — English, 779
 — French, 786
 — German, 784
 — Greek, 788-790
 — Italian, 788
 — Latin, 790-792
 — Norwegian, 785
 — Romance, 786-788
 — Semitic, 793
 — Spanish, 787
 — Swedish, 785
 Lithuanian, history of, 158
 — hostilities of, with Soviet Russia, 166
 Lithuanian dictionaries, 794
 Live stock, 485-488
 — in Canada, 137
 — dealers, licensing of, 498
 — diseases of, 488, 498
 — range-management for, 481
 — registration of, 498
 — statistics of, 513
 — taxation of, 498
 Liverpool, strike of police in, 143
 — cost of. See Cost of living.
 — standards of, 403
 Livingston, George, 198, 475
 Livonia, history of, 157
 Lloyd-George, David, Ministry of, 139
 Loan sharks, legislation on, 293
 — and trust companies, resources and liabilities of, 383
 — to Allies, 365, 366
 — war finance by, 365
 Lockouts, 459
 Locomotive headlights, electric, 537
 Locomotives, steam, 586
 — feed-water of, 586
 — fuels for, 586
 — wind pressure on, 587
 Locust, 17-year, 495
 Logic, 725
 London, Treaty of, 87, 88
 Longshoremen, strikes of, 453
 Loreley, opera, 764
 Los Angeles, Council of Community Service of, 407
 — municipal cement plant of, 317
 — electric plants of, 318
 — telephone systems in, 577
 Louisiana, Agricultural Experiment Station of, 477
 — illiteracy in, 804
 Louisville Passenger Fares Case, 563
 — steel railway bridge at, 569
 Louvain, restoration of, 105
 Love of the Three Oranges, opera, 764
 Lubin, David, 483
 Lubrication, 583
 Lumber, freight rates on, 564
 Lung, surgery of, 708
 Lutheran churches, 740
 Luxembourg, history of, 161
 — Peace Treaty provisions on, 98
 Luxemburg, Ricsa, 152
 Luxuries, taxation of, 52
 Lynchings, 433
 MACDONALD, Thomas H., 198, 475
 Machine guns produced by Allies, 170
 — — by U. S., 191
 — — production of, 170, 191
 — tools, 588
 Mackay Companies, 558
 — under Government control, 40
 MacMurray, John Van A., 195
 Magnetic analysis of steel, 605
 — surveys, 622
 Magnetism, terrestrial, 622-623
 Mail, delay due to, law of, 279
 — pay, railroad, 556
 Maine, appropriations in, for public health, 717
 — constitution of, amendments to, 232
 — legislation in, on old-age pensions, 470
 — — on physical education, 805
 — road bond, issue in, 308
 — water-power, investigation in, 316
 Majors v. Allen Mfg. Co., 284
 Malaria in U. S. Army, 698, 711
 Malt sugar, production of, 645
 Mammals, fossil, 683
 Man, antiquity of, 730
 Mandamus, liability of civil service commissions to, 288
 Mandatories under League of Nations, 77, 81
 Manganese bronze, 604
 — effect of, on plant growth, 651
 — electrometallurgy of, 655
 — ore, production of, 521
 — resources, investigations of, 300
 Mann, James R., defeat of, for Speaker, 3
 Mannerheim, Gen. Justus, 157
 Mansel v. Webb, 272
 Manubens v. Leon, 271
 Manufactures, 536-545
 — of boots and shoes, 540
 — census of, 544
 — of chemical glassware, 544
 — of chemicals, 541
 — of coal-tar products, 541
 — cotton, 539
 — of cotton venetians, 544
 — of dyestuffs, 541
 — exports of, 537, 549
 — imports of, 549
 — of iron and steel, 536
 — of optical glass, 544
 — textile, 536
 — of wool, 540
 Manufacturing, failures in, 536, 537
 Manul v. Durst, 284
 Mapping, photographic, from airplanes, 631
 Maps, ethnographic, 632
 — military, of western front, 631
 — new, 630
 — topographic, U. S., 298
 Marble, investigations of, 300
 March, Gen. Peyton C., 196, 324
 Marine Corps, 197, 340
 — state quotas in, 173
 — engineering, 598
 — engines, 601
 — insurance, 359
 — — Congressional investigation of, 398
 — — statistics of, 393, 394, 397, 398
 Marine workers, strikes of, 22, 453
 Markensite, 620
 Marketing of farm products, 497, 498
 Markets, Bureau of, 198, 475
 — appropriations for, 477
 Marriage and divorce, census of, 735
 — law of, 289
 — Evasion Act, Uniform, 273
 — License Act, Uniform, 273
 Marshall, Thomas R., 194
 Martin v. Francis, 278
 Martineau v. Foley, 282
 Maryland, area surveys in, 301
 — county home rule in, 235
 — elections in, 64
 — geological investigations in, 301
 — soil surveys in, 302
 — topographic survey of, 300
 — water resources of, 302
 Masaryk, Thomas G., 158
 Massachusetts administrative consolidation in, 225
 — constitution of, amendments to, 223, 225, 232
 — Department of Agriculture of, 499
 — — of Public Utilities of, 316
 — — of Public Welfare of, 406
 — Drainage Board of, 306

INDEX

- Massachusetts, education in, 802
 — of emigrants, 804
 — elections in, 65
 — Gas and Electric Light Commission of, 316
 — governor of, powers of, 223, 224
 — term of, 223
 — legislation in, on Civil Service, 212
 — on psychiatric clinics, 429
 — on recreation, 416
 — on women's labor, 470
 — prohibition, issue in, 438
 — Public Service Commission of, 316
 — public works in, 445
 — taxation of corporations in, 372
 — water-supply, investigation in, 317
 Massachusetts v. Karronen, 291
 Masses, Testamentary provision for, 272
 Master and servant, law of, 284
 Matanuska coal fields, Alaska, 262
 Materials, American Society for Testing, specifications of, 605
 — of construction, 602-606
 — testing of, 605
 Maternal welfare, conditions of, 418
 Maternity hospitals, legislation on, 420
 — protection of, standards for, 418
 Mathematics, 607-608
 Mathewson v. Edison Electric Co., 284
 Matti v. Chicago, M. & St. P. Ry., 275
 Maura, Antonio, 162
 Mayo, Adm. Henry T., 334
 Mayors, conference of, on unemployment, 443
 McAdoo, Wm. G., recommendation of, on railroad control, 33
 McCatran, Wallach A., 195
 McGraw v. Gresser, 283
 McIlhenny, John A., 200, 210
 McIntosh v. Georgia, 295
 McKnight v. Pecos & Toyah Lake Irrigation Co., 306
 McGreevy v. Boston Elevated Ry., 286
 Measles in U. S. Army, 697
 Meat, exports of, 485
 — inspection of, 485, 490
 — packing industry, regulation of, 20
 — price of, 486
 — production of, 485
 — products, exports of, 550
 Meats, wrapped, net weight of, 496
 Mechanical engineering, 580-589
 — handling of freight, 312
 Medall art, 755
 Medals, war, 755
 — awards of, 326
 Mediation and Conciliation, Board of, 200
 — in labor disputes, 460-462
 Medical practitioners, law of, 290
 — sciences, 689-722
 Medicine, 697-706
 — and Surgery, Bureau of, Navy, 197
 — veterinary, 488-490
 Medina, occupation of, 163
 Melcher v. Melcher, 281
 Meléndez, Carlos, 131
 Memorial Buildings, National Committee on, 406, 416
 Memorials, war. *See* War memorials.
 Memphis, memorial auditorium at, 764
 — port development at, 314
 Mendelism, validity of, 667
 Meninigitis in U. S. Army, 697, 711
 Menocal, Mario, 127
 Mental clinics, 428
 — attached to courts, 429
 — in prisons, 432
 — diseases among soldiers, 425
 — treatment of, 428
 — hospitals, statistics of, 430
 — hygiene, 421, 424-430
 Mental hygiene, National Committee for, 427
 — Tests, 728
 — Army, 425
 — in schools, 814
 — for college entrance, 728
 Merchant-Marine (*see also* Shipping), 542, 546, 547
 — Canadian Government, 135
 — education for, 807
 — legislation on, 43
 — policy on, 42
 — world's, 546
 Mercier, Cardinal, visit of, 746
 Meredith, Edwin T., 197
 Metallurgy (*see also* Electrometallurgy), of copper, 518
 — of gold, 520
 — of iron and steel, 522
 — of lead, 526
 — of silver, 520
 — of zinc, 527
 Metals, electron theory of, 663
 — non-ferrous, specifications for, 603
 — prices of, 514
 Metaphysics, 723
 Meteorological Society, American, 626
 Meteorology, aeronautical, 624
 — agricultural, 625
 — of Antarctic, 633
 — and climatology, 623-626
 Methodist churches, proposed union of, 741
 — Episcopal Church, reconstruction programme of, 743
 — social work of, 436
 — South, status of women in, 742
 — missions, 742
 — pageant, *The Wayfarer*, 765
 Metropolitan Museum of Art, 754
 Mexican Affairs, Division of, 195
 Mexico Antigua, 729
 Mexico, Bureau of Anthropology of, 729
 — arrest of Wm. O. Jenkins by, 121
 — conditions in, 120
 — embargo on arms to, 120, 122
 — exclusion of, from League of Nations, 76
 — history of, 128
 — immigration from, 440
 — international relations of, 120-122, 129
 — outrages on Americans in, 121
 — petroleum question in, 129
 — punitive expeditions into, 120
 — relations of U. S. with, 120-122, 129
 — revolutionary movements in, 129
 Michigan, constitution of, amendments to, 232, 471
 — forest fires in, 502
 — geological investigations in, 301, 302
 — legislation in, on budget, 372
 — on declaratory judgments, 273
 — on equal pay, 469
 — on hours of labor, 471
 — on physical education, 805
 — on recreation, 416
 — mine valuation in, 300
 — road bond issue in, 308
 — state purchasing in, 225
 — University of, library of, 817
 — water resources of, 302
 Migratory Divorce Act, Uniform, 273
 Military aeronautics, 591
 — Director of, 196
 — education, 796
 — engineering, 565
 — maps of western front, 631
 — policy, permanent, 48
 — training, universal, 48, 324, 805
 Militia Bureau, 196
 Miller, Ransford S., 195
 Millerand, Alexandre, 152
 Milk campaigns, 485
 — chemistry of, 652
 — condensed, exports of, 484
 — production of, 483
 Milk, food value of, 485
 — powder, 485
 — price of, 484
 — producers' organizations, 484
 — remade, 647
 — skimmed, condensed, 647
 Millar v. Millar, 289
 Miller v. Stewart, 280
 Mills v. Brookier, 271
 Milwaukee, civic center of, 245
 — civil service in, 210
 — elections in, 64, 257
 Mine inspection, legislation on, 472
 Mineral deposits, theory of, 618
 — industries, 514-535
 — oils, price of, export, 539
 — production by principal countries, 529
 — statistics of, 528-535
 — of U. S. by quantities, 531
 — by states, 523
 — by values, 532
 — world's, 528
 — products, exports of, 535
 — imports of, 535
 — resources, 298-299
 Mineralogy and petrography, 619-621
 Minerals, new, 620
 — Separation Co., patents of, 515, 520
 — War, Adjustment Board, 514
 Miners, metal, wages of, 515
 Mines, Bureau of, 197
 — taxation of, 374
 Minimum wage, decisions on, 464
 — legislation on, 469
 Mining, copper, 519
 — gold, 519, 520
 — industry, 514
 — labor situation in, 514
 — methods, 514
 — and ore dressing, 514-515
 — silver, 519, 520
 Ministerial officers, liability of, 283
 Ministers, U. S., 209
 Minnesota, blue-sky law of, 362
 — constitution of, amendments to, 232
 — Department of Agriculture of, 499
 — Drainage and waters of, 306
 — drainage-district law of, 307
 — education of feeble-minded in, 428
 — iron investigations in, 301
 — legislation in, on budget system, 227
 — on civil service, 212
 — on defective children, 421
 — on forest fires, 503
 — on insurance of cripples, 470
 — on old-age pensions, 470
 — on sedition, 293
 — Library Commission of, 818
 — peat investigations in, 300
 — sabotage law of, 292
 — soil surveys in, 302
 — state parks in, 762
 — Working People's Non-Partisan Political League of, 452
 Minnesota *ex rel.*: Skordahl v. Flaherty, 307
 Minority stockholders, rights of, 280
 Mint, 195
 Missionary Society, United Christians, 740
 Missions, German Lutheran, 741
 — Methodist, 742
 — Peace Treaty provisions on, 107
 — Y. M. C. A., 749
 Mississippi, geological investigations in, 301
 — geology of, 616
 — mineral resources of, 303
 — soil survey in, 302
 — water resources of, 302
 Missouri, constitution of, amendments to, 232
 — criminal code revision in, 292
 — geological investigations in, 301
 — legislation in, on child welfare, 419

INDEX

- Missouri, legislation in, on defective children, 421
- on dependent children, 420
- on women's labor, 472
- on workmen's compensation, 398, 470
- municipal home rule in, 239
- taxation of corporations in, 372
- Missouri v. Scullin-Gallagher Co., 276
- Missouri, Kansas & Texas Ry. v. Silber, 282
- v. Hohn Sealy, 564
- Mitchell v. Lowden, 226
- Mobridge Grocery Co. v. Chicago, Milwaukee & St. Paul Ry., 562
- Modern Medicine, 718
- Moehlenpah, Henry A., 199
- Mohave Desert, paleontology of, 683
- Mollusca, 679
- Mondell, Frank W., 3
- Money in circulation, 375
- market, 355
- orders, postal, 557
- rates, 342, 356
- Monroe Doctrine, League of Nations and, 8, 74, 81
- Montain v. Fargo, 283
- Montang, constitution of, amendments to, 232
- drought in, 487
- forest fires in, 502
- legislation in, on equal pay, 469
- on forest refuse, 503
- taxation of public utilities in, 374
- Montenegro, union of, with Yugoslavia, 160
- Montero, José, 130
- Mooney case, 451
- Moore, J. Hampton, 256
- Morale, psychology of, 735
- Moreira, Delirm, 125
- Moreno, Alfredo Baquerizo, 128
- Morgan, Adm. C. B., 332
- Morgan Munitions Co. v. Studebaker Co., 278
- Morocco, French administration in, 635
- Peace Treaty, provisions on, 101
- physiography of, 629
- Morrison, Martin A., 200, 210
- Mortality tables, American, 391, 392
- Moselle, Peace Treaty provisions on, 108
- Mothers' pensions, 419
- Motion pictures, projection lamps for, 578
- Motor fuels, 584, 658
- trucks, farmers' cooperative routes, 483
- road construction for, 567
- Moulding bands, 588
- Everest, exploration of, 635
- Mt. Wilson Observatory, 610
- Mountain ranges, building of, 627
- Movement for the Union of Evangelical Churches, 739, 746
- Mules, price of, 512
- statistics of, 513
- Multiplex telephony, 577
- Munich, revolution in, 152
- Municipal cement plants, 317
- charters, 237-239
- civil service, 211
- corporations, liability of, 282
- elections, 256
- electric plants, 575
- engineering, 571
- finance, 239
- statistics of, 259, 260
- golf courses, 415
- government, 237-260
- home rule, 239
- ice plants, 317
- Improvements, American Society of, 256
- League, National, 256
- markets, 317
- organizations, 256
- ownership of public utilities, 316
- reconstruction programs, 242
- Municipal recreation, 414
- regulation of aerial traffic, 257
- research, 240
- New York Bureau of, 241
- surveys, 241
- Municipal Gas Co. v. Public Service Commission, 274
- Mural paintings, 756
- Murmansk, military operations in, 167
- Murphy's Hotel v. Cuddy's Adm., 285
- Muscle Shoals, dam at, 570
- nitrogen-fixation plant at, 580
- Museums, art, 754
- Music, 763-768
- chamber, 766
- community, 415, 764, 765
- festivals, 766
- German, in U. S., 764
- National Conservatory of, proposed, 764
- pageant, 765
- symphonic, 766
- Musk oxen in Alaska, 262
- Mustapha Kemal Pasha, 161
- Mustard gas, chemistry of, 643
- effect of inhalation of, 696
- Mutual Life Insurance Co., war losses of, 389, 390
- Mycology, Imperial Bureau of, 491
- NARCOTICS Act, Federal, constitutionality of, 276
- Nashville Traffic Bureau v. Louisville & Nashville R. R. Co., 563
- Natchez Chamber of Commerce v. Louisiana & Arkansas Ry. Co., 562
- National Academy of Design, 754
- Air Force proposed, 591
- Art Committee, 753
- Assembly of Civil Service Commissions, 212
- banks. See Banks
- Board for Jurisdictional Awards in the Building Industry, 460
- of Farm Organizations, 479
- Catholic War Council, 435
- Welfare Council, 435
- Civil Service Reform League, 210, 212
- Committee for Mental Hygiene, 427
- on Inland Waterways, 555
- on Memorial Buildings, 406, 416
- Conference of Social Work, 403
- of Social Work, 404, 408, 410
- on City Planning, 249
- Conservatory of Music, proposed, 764
- Council of Congregational Churches, 740
- on Workmen's Compensation Insurance, 398, 399
- Country Life Conference, 408, 735
- Defense, Council of, 16
- Education Association, 808, 809
- Electric Light Association, 581
- Fire Prevention Association, 252
- forests, 476, 503
- Gallery of Art, 754
- government, 194-209
- Guard, strength of, 329
- Health Council, 716
- Housing Association, 256
- Industrial Conference, 28, 461, 479
- Federation of Clothing Manufacturers, 461
- Information Bureau, 408
- Labor Congress, 451
- Party, 65, 433
- Lutheran Commission, 741
- monuments, 503
- Municipal League, 256
- Museum, 200
- Park Service, 197
- Physical Education Service, 416
- Portrait Foundation, 753
- National Research Council, 664
- anthropology in, 729
- Psychological Committee of, 725
- Fellowships, 665
- Social Workers' Exchange, 409
- Society of Craftsmen, 756
- Soldiers' Settlement Act, 62, 307
- transportation conference, control plan of, 34
- War Labor Board. See War Labor Board.
- War Work Council, Y. M. C. A., 749
- Natural gas, investigations of, 300
- production of, 534
- storage of, 517
- Naturalization, Bureau of, 199
- law of, 290
- Canadian, 133
- Naval Academy, 339, 340
- Appropriation bill, 50
- architecture and marine engineering, 598-601
- Communications, Chief of, 340
- Flying Corps, 338
- Intelligence, Chief, of, 340
- operations, Chief of, 197, 340
- programme, three-year, 50
- War College, 339
- Navies, principal, strength of, 336
- Navigation, Bureau of, 197, 199, 340
- Navy, 330-340
- administration of, 340
- aeronautics in, 337, 338, 591, 597
- air force of, 338
- Air Service, 591
- airships of, 597
- appropriations for, 340
- balloon construction of, 597
- battle cruisers of, 334
- battleships of, 334
- building programme of, 50
- Chief Constructor of, 197
- Cruiser and Transport force of, 332
- demobilization of, 330, 338
- Department, 197
- bureaus of (see also bureaus by name), 197, 340
- organization of, 340
- dirigibles of, 337
- dry docks of, 335
- education in, 339
- Engineer-in-Chief of, 197
- fleet organization in, 332
- General Board of, 197
- Judge - Advocate - General of, 197
- libraries in, 816
- maneuvers of, 334
- mine sweeping by, 332
- new construction of, 334
- Overseas Transportation Service of, 332
- Pay Corps of, 340
- pay in, 322, 339
- Paymaster-General of, 197
- personnel of, 338
- radio compass stations of, 339
- recruiting in, 339
- Secretary of, 197
- social hygiene in, 423
- state quotas in, 173
- strength of, 334
- personnel, 338
- Supply Corps of, 340
- Surgeon-General of, 197
- transportation by, of cargo, 332
- of troops, 330
- war expenditures of, 325, 340
- wireless communication under, 339
- Naylor Co. v. Delaware, Lackawanna, & Western R. R. Co., 563
- NC flying boats, 592
- NC-4, flight of, 337, 593
- Near beer, 645
- Near East, ethnographic map of, 632
- Near-Eastern Affairs, Division of, 195

INDEX

- Nebraska, Constitutional Convention of, 223, 230, 232
 — criminal code, revision in, 292
 — elections in, 64
 — game laws of, 292
 — grasshopper eradication in, 292
 — legislation in, on budget, 372
 — — on irrigation, 354
 — — on minimum wage, 469
 — Power Co., franchise of, 318
 — secretary of finance of, 374
 — Sunday laws of, 292
 — taxation of banks in, 373
 Nebraska v. Employers of Labor *et al.*, 288
 Nebula, 613
 Necrology, American, 841-845
 — foreign, 845
 Negligence, law of, 284
 Negotiable Instruments Act, Uniform, 273
 — paper, law of, 280
 Negro population, 734
 Negroes, segregation of, legislation on, 293
 Nelson Chlorine process, 653
 Nemathelminthes, 678
 Nephi Plaster & Mfg. Co. v. A. T. & S. F. Ry., 563
 Netherlands, history of, 161
 Neully, Treaty of, 117
 Neurology, 672
 Neuropathy, decisions on, 290
 Nevada, Board of Ship Commissioners of, 498
 — copper deposits of, 618
 — gold mining in, 520
 — legislation in, on budget, 372
 — — on industrial safety, 472
 — — on irrigation, 304
 — reclamation in, 297
 — road bond issue in, 308
 — silver mining in, 514, 520
 Neville, Gen. Wendell C., 340
 New England vessel fishing, 504
 New Era Movement, Presbyterian, 743, 744
 New Hampshire, legislation in, on budget, 372
 — — on live-stock taxation, 498
 — library, Commission of, 818
 — taxation of inheritances in, 373
 New Jersey, appropriations in, for child welfare, 717
 — Board of Control of, 406
 — elections in, 64
 — geological investigations in, 301
 — prohibition issue in, 438
 — street-railway fares in, 315
 — trolley strikes in, 456
 New Mexico, appropriations in, for public health, 717
 — archaeological investigations in, 733
 — Child-Welfare Board of, 419
 — constitution of, amendments to, 232, 233
 — Department of Health of, 717
 — legislation in, on irrigation, 304
 — — on live-stock registration, 498
 — taxation in, of corporations, 372
 — — of incomes, 373
 — — of inheritances, 373
 — — of property, 374
 New Mexico, rating of, 576
 New Orleans, port development at, 313
 New York Bureau of Municipal Research, 241
 New York Central R. R. Co. v. Samuel Goldberg, 564
 New York City, bank clearings in, 352
 — billboards in, 255
 — civil service in, 212
 — community councils in, 407
 — elections in, 64, 257
 — gas rates in, 318
 — highway tunnel to Jersey City at, 570
 — housing in, 246
 — immigration through, 441
 — Jewish charities in, 751
 — Labor Party of, 452
 — libraries in, 817
 — milk prices in, 484
 New York City, municipal ownership in, 316
 — port development at, 313, 571
 — Public Service Commission of, 315
 — Socialist vote in, 64, 438
 — street-railway fares in, 315
 — strikes in, of actors, 458, 768
 — — of cigar makers, 460
 — — of clothing workers, 455
 — — of express drivers, 454
 — — of harbor workers, 22, 312, 453
 — — of printers, 460, 773
 — — of transit workers, 456
 — subways in, 571
 — Theatre in, 769
 — transit-construction commissioner of, 315
 — unemployment in, 443
 — vehicular tunnel at, 313
 — Victory Arch in, 755
 — water supply of, 317, 570
 — zoning in, 246
 New York Clearing House banks, condition of, 357
 — Curb Market Realty Associates, 362
 — Harbor, pollution of, 319
 New York State, Archaeological Investigations in, 734
 — Canals, traffic on, 554, 555
 — constitution of, amendments to, 233
 — elections in, 64
 — fire-insurance companies in, 394
 — geology of, 617
 — health insurance in, 465, 469
 — labor conference in, 462
 — legislation in, on banking, 387
 — — on insurance, 389
 — — on unemployment, 471
 — — on women's labor, 470, 472
 — marine insurance companies in, 396
 — municipal home rule in, 239
 — municipal ownership in, 316
 — prison mental clinics in, 429, 432
 — prison population of, 431
 — probation in, 431
 — Public Service Commissions of, 315
 — public works in, 445
 — Reconstruction Commission of, 223, 443
 — road bond issue in, 308
 — taxation in, of corporations, 372
 — — of incomes, 373
 — — of inheritances, 374
 — teachers' salaries in, 808
 New York State, People *ex rel.* Finnegan v. McBride, 288
 — People v. Minsky, 289
 — v. Taleisnik, 295
 New York Stock Exchange, Commissions on, 361
 — fidelity insurance, plan of, 361
 — listings on, 354
 — Stock Clearing Corporation of, 360
 — transactions on, 341, 354
 New Zealand Shipping Co. v. Société des Ateliers de France, 270
 Newark, N. J., zoning in, 246
 Newberry, Senator T. H., indictment of, 5
 Newburgh, N. Y., municipal golf course, 415
 Newfoundland, elections in, 150
 Newspaper writers, strikes of, 460
 Niagara Falls Power Co., turbo-generators of, 575
 Niagara Falls, zoning in, 246
 — River bridge, reconstruction of, 569
 Niblack, Adm. A. P., 340
 Nicaragua, history of, 130
 Nickel, electrolytic refining of, 652
 — steel for ordnance, 523
 Nitrate industry, Chilean, 126
 — supplies of, 480
 Nitrogen, atmospheric, fixation of, 480, 580, 650
 — compounds, chemistry of, 637
 Nitrogen-fixing bacteria, 651
 Nitti, Francesco, 155
 Nixon, Lewis, 315
 Nobel Peace Prize, 162
 Non-Partisan League, 65
 — banking legislation of, 387
 — industrial programme of, 226
 Normal schools, attendance at, 808
 North Carolina, constitution of
 — amendments to, 233
 — county government in, 235, 236
 — — public welfare departments in, 406
 — illiteracy in, 804
 — legislation in, on agricultural education, 499
 — — on banking, 387, 388
 — — on cotton warehouses, 498
 — — on delinquent children, 420
 — — on employment, 471
 — — on fertilizers, 498
 — — on social welfare, 408
 — — mining industry of, 302
 — — tax administration in, 374
 North Carolina v. Dunning, 295
 North Dakota, constitution of, amendments to, 233
 — Flood Control, Commission of, 307
 — Home Builders' Association, 248
 — Industrial Commission of, 226
 — legislation in, on drainage, 307
 — — on full crews, 472
 — — on home building, 248
 — — on hours of labor, 471
 — — on minimum wage, 469
 — — on state-owned bank, 387
 — — on women's labor, 470
 — — on workmen's compensation, 398, 470
 — — lignite investigations in, 300
 — — state bank of, 226
 — — state-owned enterprises in, 226
 — — tax administration in, 374
 — — valuations in, 374
 — — taxation in, of incomes, 373
 — — of property, 374
 — — workmen's compensation law of, 463
 North Dakota v. Stearns, 463
 North v. Loomes, 271
 North Sea, mine sweeping in, 332
 Northern Baptist Convention, 739
 — Pacific Ry. Co. *et al.* v. North Dakota, 564
 — Potato Traffic Association v. Chicago & Northwestern R.R. Co., 563
 — Presbyterian Church, 743
 Northrup v. Eakes, 282
 Norway, history of, 162
 — Socialism in, 440
 Norwegian literature, 785
 Noske, Gustav, 154
 Nova Scotia, apple crop in, 499
 Nuisances, 254
 Numbers, theory of, 608
 Nursery stock, exports and imports of, 500
 Nurses, army, in War, 185
 Nutrition, chemistry of (*see also* Vitamines), 643, 676
 Nuts, exports and imports of, 500
 OAKLAND, Cal., port development at, 314
 Oats, price of, 344
 — production of, U. S. 343, 474, 509
 — — by states, 510
 — — world's, 506
 — — by principal countries, 507
 Observatories, astronomical, 610
 Occupation, Army of, 105
 Occupational diseases, 449
 — compensation for, 716
 — legislation on, 470
 — therapy, 423
 Ocean currents, detection of, 630
 Oceanography, 629-630
 Odessa, evacuation of, by Allies, 157
 Office, public, law of, 274

- Ohio, appropriation in, for feeble-minded, 422
- Archaeological and Historical Society, Museum of, 733
- condensed milk law of, 647
- Conference of Charities and Correction, 410
- conservancy law of, upheld, 307
- constitution of, amendments to, 233
- geological investigations in, 301, 302
- health insurance in, 469
- Health and Old-Age Insurance Commission, report of, 464, 465
- juvenile courts in, 429
- legislation in, on district health officers, 717
- — on women's labor, 472
- — on workmen's compensation, 470
- map of, 301
- national prohibition referendum in, 233
- penitentiaries in, 434
- prohibition issue in, 233, 433
- public works in, 445
- zoning in, 245
- Ohio Valley Coal Operators' Association v. Illinois Central R.R., 563
- v. Louisville & Nashville Ry. Co., 562
- Oil engines, 584
- marine, 601
- resources, investigations of, 300
- storage of, for A. E. F., 566
- tanks, concrete, 569
- Oil, mineral, price of, export, 539
- Oklahoma, area surveys in, 301
- asphalt investigations in, 300
- Oklahoma, constitution of amendments to, 233, 308
- Farm and Industrial Council of, 499
- geological investigations in, 301
- legislation in, on agricultural credit, 498
- — on agricultural education, 499
- — on budget, 372
- — on criminal syndicalism, 291
- — on hall insurance, 498
- — road bond issue in, 308
- — taxation of, of banks, 373
- — of corporations, 374
- Oleott v. Hoff, 223
- Old-age pensions, 465
- legislation on, 470
- Oliga, in re*, 280
- Oliver, Adm. James H., 269
- Olivelraite, 620
- Omaha, electricity supply of, 318
- Oman, Adm. Joseph W., 269
- Omsk, occupation of, by Bolsheviks, 156
- Ontario, elections in, 138
- housing in, 251
- Opera, 764
- community, 415
- Opium, Peace Treaty provisions on, 107
- Optical glass production of, 544
- Optics, physics of, 661
- Ordnance, Bureau of, Navy, 197
- Chief of, Army, 196
- Ore deposits, theory of, 618
- dressing, 514, 518
- Oregon, constitution of, amendments to, 233, 234, 308
- legislation in, on administrative reform, 224, 225
- — on banking, 387, 388
- — on civil service, 212
- — on employers' liability, 469
- — on fertilizers, 499
- — on forest fires, 503
- — on irrigation, 306, 307
- — on physical education, 805
- — on soldier land settlement, 308
- — on unemployment, 471
- — prohibition referendum denied in, 277
- public lands in, 296
- road bond issue in, 308
- Oregon, soldiers' bonuses in, 798
- succession to governorship in, 223
- — taxation of credits in, 374
- Organic chemistry, 641-643
- evolution, 666-670
- Organized social work, 401-413
- Oriental peach moth, 495
- Society, American, 794
- Orion, nebulosities of, 613
- Orlando, Vittorio, 155
- Orr, in re*, 281
- Orr v. Allen, 307
- Orville, 620
- Ostia, excavations at, 763
- Oswego Canal, traffic on, 555
- Ottumwa Ry. Co. v. City of Ottumwa, 275
- Overhanging trees, law of, 271
- PACHITCH, N. P., 160
- Pacific Fleet, 332
- Lumber Company case, 38
- ranges, geology of, 616
- Packers, meat, licensing of, 497
- Packing industry, Federal control of, removed, 359
- regulation of, 20
- Paderewski, Ignace Jan, 158
- Page, Charles R., 199
- Pageants, 415, 765
- Paint, physical properties of, 606
- Painters, Sculptors, and Gravers, American, Society of, 754
- Painting, sculpture, and handicrafts, 753-757
- Palaeontologic geology, 301
- Palaeontology, vertebrate, 681-685
- Palaeopathology, 684
- Paestrina*, opera, 765
- Palmer, A. Mitchell, 15, 196
- bomb attack on, 59
- Panama, history of, 130
- Panama Canal, finances of, 364
- Pan-American Commercial Conference, 124
- Labor Congress, 449
- Union, 200
- Pan-Pacific Congress, 264
- Paraffin hydrocarbons, chemistry of, 641
- Paraguay, history of, 130
- Para-typhoid fever, in U. S. Army, 698
- Parcel post, 557
- Pardo, José, 130
- Paris, American library in, 816
- housing in, 251
- Parks, development of, 762
- national. See National parks.
- state, 762
- as war memorials, 762
- Parole, 432
- Parris v. Deering S. W. Ry., 282
- Partnership Acts Uniform, 273
- Passport Control, Division of, 195
- Passports, legislation on, 61
- Patent office, 197, 545
- Patents, chemical, German-owned, 541
- and invention, 545
- Paterson, N. J., strikes of textile workers in, 454
- Pathology and bacteriology, 693-696
- plant, 491, 685
- Payne, John B., 199
- Peace Conference, 69-73
- adopts League of Nations Covenant, 74
- Big Five in, 69
- British Dominions in, 132
- Canada in, 133
- commissions of, 70, 447
- Council of Ten of, 69
- delegations in, 69, 71
- first session of, 71
- Flume problem in, 86-90
- Italian delegation withdrawn from, 89
- Jewish question in, 750
- Latin America in, 123
- League of Nations in, 73
- negotiations of, with Admiral Koltchak, 83
- neutrals in, 71
- organization of, 69
- Peace Conference, Polish problem in, 84-86
- position of small powers in, 70
- powers represented in, 71
- president of, 71
- problems of, 73
- publicity in, 71, 72
- relations of Rumania with, 115
- representation of states in, 69
- rules of, 71
- Russian problem in, 82-84
- Sarre Basin, problem in, 94
- secrecy in, 71
- secretariat of, 72
- Shantung problem in, 90-94
- Peace delegation, American, 69
- Prize, Nobel, 162
- Senate resolution declaring, 13
- Peace Treaty, Austrian, 112-115
- boundary changes by, maps of, 631
- commercial clauses in, 114
- financial clauses of, 114
- — on inalienable independence, 113
- — on military forces, 114
- — on pre-war debt, 114
- — on protection of minorities, 113
- — on reparation, 113
- — on shipping, 114
- — on territorial cessions, 112
- ratified by Austria, 151
- signature of, 115
- Peace Treaty, Bulgarian, Economic clauses in, 117
- political clauses in, 117
- provisions of, on boundaries, 116
- — on military strength, 117
- — on reparation, 117
- signature of, 117
- Peace Treaty, German, 94-112
- attitude of labor towards, 451
- boundary changes by, maps of, 630
- controversy over, in U. S., 7-13
- economic clauses of, 106
- final draft of, 96
- financial clauses of, 105
- German counterproposals to, 95
- Germany's acceptance of, 96
- guarantees in, 109
- in state political convention, 109
- labor clauses of, 108, 109
- League of Nations Covenant in, 8, 98
- maps accompanying, 631
- military clauses of, 102
- modifications of, 96
- presented to German delegation, 94
- protocol to, 110
- provisions of, on aerial navigation, 107
- — on air forces, 103
- — on Alsace-Lorraine, 98
- — on Belgium, 98
- — on boundaries, 98
- — on bridgehead occupation, 109
- — on Bulgaria, 101
- — on cables, 103, 105
- — on chemicals and dyes, 105
- — on China, 101
- — on coal deliveries, 105
- — on conventions and treaties with Germany, 106
- — on Czecho-Slovakia, 108
- — on Danube, 108
- — on Danzig, 100
- — on Denmark, 100
- — on devastated areas, 105
- — on East Prussia, 99
- — on enemy property, 106
- — on Egypt, 101
- — on free ports, 107
- — on freedom of transit, 107
- — on German colonies, 101
- — on German debt, 105
- — on German missions, 741

INDEX

- Peace Treaty, German, provision,
 - of, on graves, 103
 - on guarantees, 109
 - on Heligoland, 100
 - on industrial property, 107
 - on international rivers, 108
 - on Kiel Canal, 108
 - on labor, 108, 109, 447
 - on Liberia, 101
 - on Luxembourg, 98
 - on military establishment, 102
 - on missions, 107
 - on Morocco, 101
 - on Moselle, 108
 - on naval establishment, 102
 - on opium, 107
 - on Poland, 100
 - on pre-war contracts, 107
 - on pre-war debts, 106
 - on railroads, 108
 - on reparation, 103
 - on Rhine, 108
 - on Rhine fortifications, 98
 - on Russia, 100
 - on Sarre Basin, 99
 - on Schleswig, 100
 - on Shantung, 90, 102
 - on shipping, 104, 106
 - on Siam, 101
 - on tariff, 106
 - on treatment of nationals, 106
 - on Turkey, 101
 - on unfair competition, 106
 - on prisoners of war, 103
 - on war criminals, 103
 - ratification of, 110
 - ratifications of, 82, 169
 - of, by Canada, 133
 - ratified by France, 152
 - refusal of China to sign, 93
 - signing of, 97
 - summary of, 97-110
 - transmitted to Senate, 9
 - in U. S. Senate, amendments proposed to, 11
 - deadlock on, 13
 - hearings on, 10
 - rejection of, 12
 - reservations to, 11
- Peach moth, Oriental, 495
- Peaches, production of, 500
- Peanut oil, imports of, 500
- Pearl Harbor, dry dock at, 264
- Pearl Mill Co. v. Ivy Tannery Co., 270
- Pears, diseases of, 492
 - production of, 500
- Peat resources, investigations of, 300
- Pectin in jelly making, 645
- Peck, George M., 16
- Peidl, Joseph, 154
- Penelope, opera, 765
- Pennsylvania Academy of Fine Arts, 754
- Pennsylvania, Banking Department of, 387
 - city planning in, 244
 - constitution of, amendments to, 230, 234
 - constitutional commission of, 234
 - county classification in, 236
 - health insurance in, 464, 470
 - legislation in, on administrative reform, 225
 - on mothers' pensions, 420
 - on municipal ownership, 317
 - on non-partisan elections, 257
 - on recreation, 416
 - on State Library, 818
 - on zoning, 245
 - municipal home rule in, 239
 - Pensions Commission, Old-Age, 465
 - prison reform in, 431
 - public works in, 445
 - road bond issue in, 308
 - State Art Commission of, 245
 - teachers' salaries in, 808
- Pennsylvania v. Seibert, 290
- Pennsylvania Co. v. Philadelphia, 288
- Ry. freight station, Chicago, 761
- Penology and criminology, 430-435
- Pension Office, 197
- Pensions, old-age, 465, 470
- Pepsin, in cheese making, 652
- Periodical cicada, 495
- Pershing, Gen. John J., military policy of, 49
- Pershing stadium, 749
- Persia, history of, 164
 - treaty of Great Britain with, 119
- Peru, history of, 130
 - relations of, with Chile, 131
 - revolution in, 130
- Pessoa, Epiácio, 125
- Petrography, 620
- Petrola, General, 159, 168
- Petroleum (see also Oil) deposits, search for, 617
 - geology of, 617
 - legislation on, in Great Britain, 270
 - mining of, 517
 - production of, U. S., 534
 - world's, 528
 - principal countries, 529
 - resources, investigations of, 300
- Pfeiffer's bacillus, 694
- Pharmacology, 645
 - physiology and, 689-693
- Phase advancer, oscillating, 575
- Philadelphia, charter of, 287
 - elections in, 256
 - housing in, 247
 - municipal research in, 240
 - port development at, 571
 - subways in, 571
 - Symphony Orchestra of, 764
- Philadelphia & Reading Coal & Iron Co., housing project of, 248
- Philippine Islands, 265-267
 - agriculture in, 266
 - cholera in, 266
 - commerce of, 266
 - economic conditions in, 265
 - education in, 265, 802
 - exports of, 267
 - imports from, 552
 - imports of, 267
 - independence movement in, 63, 265
 - influenza in, 266
 - legislation in, 265
 - political conditions in, 265
 - population of, 213
 - smallpox in, 266
- Philology, English, 778
 - German, 785
 - Indo-European, 793-794
 - Latin, 791, 795
 - Romance, 786
 - Semitic, 793
- Philosophical Association, American, 723
 - Western, 723
- Philosophy, 723-725
 - effect of war on, 723
 - history of, 723
 - of religion, 723
 - social, 724
- Phosphate rock as fertilizer, 651
 - production of, world's, 528
- Phosphorus, effect of, in steel, 605
- Photographic surveying, aerial, 631
- Physical defects in drafted men, 715, 729
 - education, 416, 805
 - geography, 626-629
 - measurements in Army, 729
 - physics, 659-664
- Physiognomy, economic applications of, 626
- Physiology, plant, 685
 - and pharmacology, 689-693
- Phytopathological Research, Institute of, 491
- Society, American, 491
- Plaggio v. Somerville, 277
- Pickering, Edward Charles, 609
- Piers, design of, 312
- Pig iron, price of, 344, 514
 - production of, U. S., 344, 345, 521, 531, 532, 533, 536
 - by principal countries, 529
 - by states, 533
 - world's, 528
- Pigeons, evolution in, 666
- Pigments, production of, 531, 532
- Pisudski, Gen. Joseph, 158
- Pitdrown remains, 730
- Pinaverdol, synthesis of, 619
- Pineal body, 672
- Pineapples, production of, 500
- Pipes, water flow in, 585
- Pittsburgh, bridge raising at, 569
 - smoke nuisances in, 254
- Pituitary gland, physiology of, 675
- Plant chemistry, 642, 651, 686
 - Disease Survey, 491
 - diseases, 491-493, 686
 - growth, soil conditions affecting, 650
 - stimulation of, 500, 652
- Industry, Bureau of, 198
 - appropriations for, 476
 - lice, 651
 - pathology, 491, 685
 - physiology, 685
 - pigments, 642
 - quarantines, 491
- Plastometer, 606
- Platinum, price of, 514
 - production of, 531, 532
 - specific heat of, 661
- Platt amendment to Federal Reserve Act, 385, 386
- Platyhelminthes, 677
- Playground and Recreation Association, 417
- Playgrounds, extension of, 414
- Plays, notable, 770
- Plumb plan, of railroad operation, 34, 453
- Plunkett, Sir H., Home Rule plan of, 146
- Pneumococci, 695
- Pneumonia, 703
 - contagion of, 697
 - influenzal, 694
 - relation of, to influenza, 703
 - in U. S. Army, 697, 698, 711
 - vaccination against, 714
- Poetry, publication in, 776
- Poland, Allies' treaty with, 85
 - American troops in, 328
 - atlas of, 632
 - corridor of, to Baltic, 86
 - German cessions to, 98
 - guarantees of, 84, 85
 - history of, 158, 162
 - hostilities of, with Czecho-Slovakia, 165
 - of, with Germany, 165
 - with Ukraine, 165
 - with Soviet Russia, 168
 - Jews in, 85
 - Peace Treaty, provisions on, 100
 - problem of, in Peace Conference, 84-86
 - relations of, with Germany, 86
- Polar exploration, 633
- Police, 253
- Policemen, legal powers of, 253
 - strikes of, in Boston, 24, 65, 457
 - in England, 143
 - unions of, 253, 450
- Policewomen, 254
- Poliomyelitis, resemblance of encephalitis lethargica to, 706
- Political conditions, 63
- Politics and parties, 63-67
- Polk, Frank Lyon, 194
- Polk v. Union Trust Co., 280
- Popular canker, 492
- Popular government, 227-230
- Population, of Alaska, 261
 - census of, 737
 - of Guam, 263
 - of Hawaii, 264
 - Negro, census of, 734
 - of U. S., by states, 213
- Pork, exports of, 485
 - production of, 485
 - soft, 487

INDEX

- Port development, 311, 571
 - Facilities Commission, 313
- Portland, Ore., housing, code of, 247
- playgrounds in, 414
- zoning in, 246
- Portland Traffic and Transportation v. Canadian Pacific Ry., 562
- Porto Rico, 267
 - commerce of, 268
 - earthquakes in, 267, 622
 - economic conditions in, 267
 - education in, 268
 - exports of, 268
 - imports to, 551
 - health conditions in, 268
 - imports from, 552
 - imports of, 268
 - influenza in, 268
 - irrigation in, 267
 - legislation in, 267
 - on hours of labor, 471
 - on minimum wage, 469
 - population of, 213
 - roads in, 267
 - surveys in, 299
 - vanilla bean culture in, 501
- Portland Foundation, National, 753
- Gallery, National, 753
- Ports, construction of, for A. E. F., 566
 - free, 313
 - German, 107
- Post Office, 556, 557
 - Appropriation Act, 308
 - Department, 196
 - wages in, 466
- Post roads, appropriations for, 308
- Postal savings system, 384
 - service, finances of, 556
 - foreign, cost of, 547
 - services, statistics of, 557
- Postal Telegraph Co., 558
 - under Government control, 40
- v. Chicago Great Western R. R., 564
- Postmaster-General, 196
- Postmasters, appointment of, 210
- Potash, greens and mari as source of, 301
 - imports of, 539
 - production of, 480, 541, 650, 657
- Potato aphids, 495
 - beetles, evolution of, 666
 - leaf burn, 495
- Potatoes, diseases of, 493
 - price of, 344, 512
 - production of, U. S., 343, 474, 500, 509
 - by states, 510
 - world's, 506
 - by principal countries, 507
- Power factors, electrical, 575
 - generation of, steam, 581
- Practice, law of, 287-289
- Pratt v. British Medical Association, 271
- Precious metals, world's production and coinage of, 530
- Presbyterian churches, 743
 - social work of, 436
 - union movements in, 744
 - New Era Movement, 743, 744
 - power, decisions on, 275
 - relief activities, 744
 - state, 226
- President, election of, 194
 - pro tempore of Senate, 194
 - salary of, 194
 - secretary to, 194
 - Wilson. See Wilson, Woodrow, 1
- Presidential preference primary, status of, 229
 - suffrage, woman, 228
- President's Industrial Conference, 30
- Press censorship of, 439
- Prinliof Islands, seal census of, 506
- Price fixing, Government, 16, 358
- Prices, 342
 - of agricultural products, 344
 - campaign to reduce, 468
- Prices, of copper, 517
 - effect of, on foreign trade, 347
 - of exported manufactures, 539
 - index numbers of, 357
 - of meat, 486
 - of metals, 514
 - statistics of, 736
 - war-time control of, 738
- Primary, direct, status of, presidential-preference, status of, 229
- Prince Edward Island, elections in, 138
 - visit of, to Canada, 133
- Prince of Wales, medal for, 755
- Prinkipo, proposed Russian conference at, 82
- Printers, strike of, in New York, 460, 773
- Printing Office, Government, 200
- Prison labor, 433
 - reform, 431
 - medal, 756
- Prisoners, mental defect among, 429
 - of war, in A. E. F., 180
 - Peace Treaty provisions on, 103
- Prisons, new, 434
 - psychiatric clinics in, 429, 432
 - self-government in, 434
- Privacy, right of, 286
- Privileged communications, 288, 421
- Pro-antithrombin, 692
- Probate of Foreign Wills Act, Uniform, 273
- Probation, 432
- Process, abuse of, 287
- Product exchanges, regulations affecting, 361
- Profiteering, Federal campaign against, 19
 - legislation on, 497
- Profits, taxes on, 370, 371
- Prohibition Act, War-time, 437
 - in Alaska, 261
 - amendment, attacks on ratification of, 55
 - enforcement of, state, 293
 - state referendums on, 277
 - referendum on, in Ohio, 233
 - in state elections, 64
 - text of, 55, 437
 - attitude of labor towards, 450
 - brewing and distilling plants under, 659
 - effects of, 648
 - Enforcement Act, 57, 437
 - enforcement of, 210
 - in Hawaii, 264
 - issue in elections, 438
 - judicial decisions on, 276, 294, 437
 - in Norway, 162
 - Party, 66
 - social effects of, 404
 - war-time, 56
- Property and casualty insurance, 393-400
 - and contracts, law of, 277-281
 - taxes, 374
- Proportional representation, 229, 230
- Prostitution, legislation on, 293
 - suppression of, 423
- Protactinium, 639
- Protestant Episcopal Church, 745
 - Faith and Order Movement of, 746
 - social work of, 435
- Prother v. Latshaw, 277
- Protiens, chemistry of, 643
- Protozoa, 676
- Provo City v. Provo Meat Co., 276
 - proximate cause, law of, 286
- Psychiatric aids, 409
 - social work, 405, 427
- Psychological clinics, 428, 429, 432
 - examination of Recruits, Committee on, 725
 - tests, 728
 - Army, 425
- Psychology, 725-728
 - abnormal, 727
 - animal, 727
- Psychology, Applied, 728
 - experimental, 726
 - educational, 728
 - general, 725
 - industrial, 728
 - social, 735
 - theoretical, 726
 - war applications of, 725
- Psychoneuroses (see also Mental diseases), 427
- Public debt, 364, 365
 - debts of belligerents, 170
 - employees, hours of labor of, 470
 - organization of, 809
 - pensions for, 465, 470
 - wages of, 469
- employment systems, state, 471
- finance, 50-54, 364-375
- Health Association, American, 716
 - and hygiene, 711-718
 - organizations, 716
 - periodicals, 718
 - relation of cost of living to, 403
 - Service, 196
 - mental hospitals of, 428
 - programme of, 715
 - Social-hygiene, work of, 422, 713
 - lands, 296-298
 - Commissioner of, 197
 - disposition of, 297
 - entries on, 296
 - grants of, for water supply, 297
 - legislation on, 61, 296
 - mineral, leasing of, 62
 - receipts, from sales of, 298
 - states of, 297
 - office, law of, 274
 - Roads, Bureau of, 198
 - resources and public works, 296-314
 - appropriations for, 477
 - and Rural Engineering, Bureau of, 475
 - service commissions, 315
 - corporations, judicial decisions affecting, 274
 - services, 315-319
 - utilities, municipal ownership of, 316
 - regulation of, 315
 - welfare, state departments of, 403
 - work for unemployed, 445, 471
 - works, Department of, proposed, 572
- Pulitzer Prize, fiction, 773
- Pulverized coal, 526
 - in copper blast furnaces, 518
- Punitive damages, law of, 290
- Pure-bred sire campaign, 484, 486
- Putney, Albert H., 195
- QUARANTINES, plant, 491
- Quartermaster-General, Army, 196
- Quebec Bridge, 135
 - elections in, 138
- Quick, Herbert, 196
- Quicksilver, production of, 531, 532
- R-34, flight of, 337, 596
- Radiation, physics of, 661
- Radical propaganda, 61
- Radicalism, campaign against, 59-61
- Radicals, deportations of, 60
- Radio communication, Government control of, 42
 - compass, 577
 - stations, 339
 - telegraphy. See wireless telegraphy.
- Radioactivity, 638, 664
- Radiochemistry, 638
- Radiography of steel, 524
- Ragweed pollen, coloring matter in, 643
- Railroad Administration, finances of, 37
 - policy of, on permanent control, 33

INDEX

- Railroad Administration, revolving fund of, 37
- strikes of marine workers of, 453
 - operations of, 561, 562
 - wage demands on, 38
 - brotherhoods, threats of, 468
 - cars, reinforced concrete, 586
 - construction, 561
 - earnings, 341, 350
 - employees, as Federal officials, decisions on, 294
 - wages of, 38
 - engineering, 570, 586
 - equipment, standardization of, 587
 - operation, Plumb plan of, 453
 - policy of Federal Administration, 31
 - rates, control of, by Interstate Commerce Commission, 37
 - Securities, National Association of Owners of, control plan of, 34
 - shopman, strikes of, 39, 457
 - terminals, 243
- Railroads, 560-563
- advances to, 560, 561
 - Alaskan, 262, 570
 - Canadian Government, 135
 - Capital expenditures of, 560
 - construction of, for A. E. F., 566
 - control of, legislation on, 35
 - proposed plans of, 33, 562
 - earnings of, 559
 - electric, 559, 576
 - electrification of, 576
 - expenses of, 560
 - freight carried by, 560
 - cars of, 560
 - rates on, 561
 - fuel conservation on, 254
 - Government operation of, abandonment of, 562
 - Government ownership of, 34, 450
 - Industrial research work of, 659
 - judicial decisions affecting (see also Carriers), 564
 - League, Citizens National control plan of, 34
 - legislation on, 35
 - light, A. E. F., 567
 - mail pay to, 556
 - mileage of, 560
 - abandoned, 561
 - Peace Treaty provisions on, 108
 - physical condition of, 560
 - as a reconstruction problem, 31
 - return of Government advances by, 37
 - return of, to private control, 35
 - revenues of, 560
 - rulings affecting, 562-564
 - safety on, campaign for, 466
 - services of, 560
 - street, 559
 - construction of, 570
 - fares on, 559, 576
 - wages on, 466, 561
- Railway Executives, Association of, control plan of, 33
- Rainfall, 625
- Range management, courses in, 481
- Rape, legislation on, 422
- Rapid transit projects, 570
- Rapsen Coal Mining Co. v. Great Northern Ry. Co., 562
- Rasmussen, Knud, explorations of, 634
- Rates, confiscatory, law of, 274
- Rations, basic, 403
- Rayleigh, Baron, 659
- Read, Lieut.-Comd. Albert C., 337, 593
- Real estate, taxation of, 239
- Realism, philosophical, 724
- Recall, status of, 229
- Reclamation, 303-308
- legislation on, 62
 - projects, school lands on, 297
 - Service, 197
 - activities of, 303
 - appropriations for, 303
- Reconstruction, agricultural, 479
- city planning in, 242
 - churches in, 741, 743, 744
 - commissions, state, 223
 - cost of living problem in, 18-21
 - economic problems of, 738
 - educational, 796-803
 - engineers in, 573
 - labor problem in, 21
 - in manufacturing, 536
 - President's messages on, 13
 - problems of, 13-21
 - programmes, municipal, 242
 - railroads, problem in, 31
 - social, 735
 - philosophy in, 723
 - state problems of, 223
- Recreation, 413-417
- Association, Playground and, 417
 - in Europe, 417
 - legislation on, 416
 - municipal, 414
- Recruits, Committee on Psychological Examination of, 725
- Red Cross, American, 410-413
- chapters of, 411
 - Commission to Europe, 410
 - community service of, 412
 - cooperation of, with Bureau of War-Risk Insurance, 412
 - disaster, relief by, 413
 - finances of, 411
 - foreign relief of, 410
 - home service of, 411
 - hospital social service of, 413
 - institutes, 413
 - Junior, 798
 - membership of, 411
 - psychiatric social work of, 427
 - public-health work of, 716
 - rural organization by, 412
 - societies, League of, 401, 411, 716
 - under League of Nations, 82
 - War Council, dissolution of, 410
 - war service of, 411
 - work, education in, 413
- Redman v. Kyle, 307
- Reds. See Radicals.
- Reeducation. See Vocational rehabilitation.
- Rees, Brig-Gen. Robert I., 812
- Referendum, status of, 229
- Referendums, state, on Federal amendments, 277
- Reformed Church, proposed union of, with Presbyterians, 744
- Refrigeration, 587
- plants, A. E. F., 566
- Refuse disposal, 319
- Registered mail, 557
- Registration area for vital statistics, 718
- Rehabilitation. See Vocational rehabilitation.
- Reindeer in Alaska, 262
- Relativity, Theory of, 660
- Relief Administration, American, 17
- in Europe, American, 410
 - appropriations for, 17
- Religion and religious organizations, 739-752
- philosophy of, 723
 - Religious bodies, statistics of, 752
 - Remote consequences, law of, 285
 - Renner, Dr. Karl, 112-151
- Reparation Commission, Inter-Allied, 103, 113
- American representation on, 10
 - demanded of Austria, 113
 - demanded of Bulgaria, 117
 - demanded of Germany, 103
 - Peace Conference Commission on, 70
- Reptiles, fossil, 682
- Republican Party, legislative programme of, 2
- National Committee of, 67
 - National Convention of, 67
 - Presidential candidates of, 67
 - in Sixty-sixth Congress, 64
 - conflict in, over seniority rule, 3
- Research, agricultural, 478
- Conference, Governmental, 240
 - Council, International, 629, 664
 - National, 664
 - anthropology in, 729
 - Psychological Committee of, 725
 - psychology in, 729
 - electrical, 578
 - mathematical, 607
 - municipal, 240
 - Scientific, 607
 - effect of war on, 580
- Reservations to German Peace Treaty, 11
- Reserve Officers' Training Corps, 322, 796
- Restricted use, covenants for, 280
- Revenue Act, 52, 369-371
- Federal, 50, 364, 365
 - estimates of, 371
- Reverberatory furnaces, copper, 518
- Review of Economic Statistics, 736, 738
- Reynolds, Wm. E., 196
- Rhine, fortification of, 98
- Peace Treaty provisions on, 108
- Rhineland, Republic of, 153
- Rhode Island, Division of Child Welfare of, 419
- legislation in, on intoxicants, 437
 - taxation in, of banks, 373
 - of corporations, 372
- Rhodes Scholarships, 811
- Rice, price of, 512
- production of, U. S., 343, 474, 509
 - by states, 510
 - world's, 506
 - by principal countries, 508
- Richardson, Gen. W. P., 327
- Rifle strength of belligerents, 170
- Rifles produced by Allies, 170
- by U. S., 190
- Riga, attacks on, 166
- Riggs, James R., 198-475
- Rio Negro, survey of, 632
- Riot and civil-commotion insurance, 395, 396
- Rip van Winkle, opera, 764
- Rivers, German, international, 108
- Road building, Army supplies for, 308
- cement supply for, 226
 - Federal aid for, 476
 - construction, 311, 567
 - design, 567
 - expenditures, state, 311
 - maintenance, 311
 - mileages, state, 311
- Roads (see also Highways), 308-311, 567
- in Alaska, 262
 - concrete, 311
 - construction of, for A. E. F., 567
 - convict labor on, 311
 - county bond issues for, 309
 - Federal appropriations for, 308
 - legislation on, 311
 - in national forests, 503
 - Public Bureau of, 198
 - state bond issues for, 308
- Roberts v. Harrington, 278
- Robinson, Henry M., 199
- Rochester, N. Y., elections in, 257
- reconstruction programme of, 242
- Rocks, mineralogical classification of, 620
- Rocky mountains, building of, 627
- flora of, 688
- Rodman, Adm. Hugh, 332
- Rodriguez v. Speyer Bros., 273
- Roger v. Pryor, 288
- Roman Catholic Church, 745
- social work of, 435
- Romance languages and literatures, 786-788
- Romanones, Count, 162
- Rome, archaeological discoveries in, 763

- Roosevelt, memorial medal of, 756
- Root, Elihu, attitude of, towards League of Nations, 9
- Roquefort cheese, manufacture of, 484
- Rose, new, 501
- Rothfield, *v.* North British Ry. Co., 271
- Rotifera, 673
- Route *v.* Brotherhood of Railroad Trainmen, 277
- Rowe, Leo S., 195
- Rubber, imports of, 539
- Ruddick, Albert B., 195
- Rumania, Allies' ultimata to, 115
- Austrian territory ceded to, 112
- demands on Hungary by, 115
- history of, 160
- hostilities of, with Galicians, 165
- with Hungary, 154, 164
- with Soviet Russia, 165
- invasion of Hungary by, 115, 154, 164
- refusal of, to sign Austrian Treaty, 115
- to sign Bulgarian treaty, 117
- relations of, with Peace Conference, 115
- Rural credits, 498
- education, 814
- life. *See* Country life.
- organization, Red Cross in, 412
- social work, 408
- Russia, American troops in, 327
- Bolshevism in, 156
- civil war in, 167
- exports to, 346
- geographical research in, 635
- history of, 156
- military operations in, 156
- naval strength of, 336
- north. Republic of, 156
- Northwest, Government of, 157
- Peace Treaty provisions on, 100
- problem of, in Peace Conference, 82-84
- Soviet Republic of, 439
- history of, 156
- hostilities against, 167
- with Estonia, 166
- with Finland, 167
- with Germans, 167
- with Great Britain, 168
- with Latvia, 165
- with Lithuania, 166
- with Poles, 168
- with Rumania, 165
- relations of U. S. with, 61
- Russian factions, proposed conference of, at Prinkipo, 82
- sunflower as forage crop, 481
- Workers' Federation of the Union of, 59
- Rusts of grain, 498, 687
- Rye, consumption of, in U. S., 475
- price of, 344, 512
- production of, U. S., 343, 474, 509
- by states, 510
- world's, 506
- by principal countries, 508
- Rylands *v.* Fletcher doctrine, 272
- SAAR. *See* Sarre.
- Sabotage (*see also* Syndicalism), legislation on, 469
- Sacramento, playgrounds in, 415
- water supply of, 318
- Safety, industrial, legislation on, 472
- Sage, Mrs. Russell, art benefactions of, 754
- Sailors, discharged, placement of, 444
- St. Germain, Treaty of. *See* Peace Treaty, Austrian, 151
- St. Joseph, Mo., municipal electric plant of, 318
- St. Lawrence River, navigation projects on, 312
- St. Louis, billboard ordinance of, 255
- city planning in, 241
- defective children in, 421
- St. Louis, garbage disposal in, 572
- reconstruction programme of, 242
- zoning in, 246
- St. Louis *v.* Allen, 253, 276
- St. Louis & San Francisco Ry. *v.* Dancy, 282
- St. Mary's Falls Canal, traffic on, 554
- St. Paul, municipal chorus of, 764
- Saito, Baron, 164
- Sales Act, Uniform, 273
- Saltzgeber, Gaylord M., 197
- Samoa. *See* American Samoa.
- Salazar, Manuel Allende, 162
- Salesmen in Latin America, conventions regarding, 132
- Salmon industry, 505
- Salvador, history of, 131
- San Dieguito Water Co. dam, 570
- San Diego, water supply of, 297, 570
- San Francisco, garbage disposal in, 319
- water supply of, 318, 570
- San Salvador, destruction of, by earthquake, 622
- Sanders gas turbine, 585
- Sands, investigations of, 300
- Sanfuentes, Luis, 126
- Sanitary chemistry, 647-649
- Sankey report on British coal mines, 142
- Sarre Basin, map of, 630
- Peace Treaty provisions on, 99
- problem of, in Peace Conference, 94
- Saturn's rings, structure of, 612
- Satyagraha Sabha, 147
- Sault Ste. Marie canals, traffic on, 554
- Savings banks, resources and liabilities of, 383
- system, postal, 384
- Scales, Adm. A. H., 339, 340
- Scapa Flow, sinking of German fleet at, 110, 111
- Scarlet fever, in U. S. Army, 697
- Scheidemann, Philip, 153
- Schenectady, concrete bridge at, 569
- Schleswig, Peace Treaty provisions on, 100
- plebiscite area, map of, 630
- Schmetzer *v.* Groeger, 281
- School attendance, campaign for, 798
- children, health of, 418
- mental defects in, 429
- Garden Army, U. S., 799
- lands on reclamation projects, 297
- periodicals, war-time, 799
- teachers, statistics of, 815
- term, average, 815
- thrift campaign, 799
- Schools, Army mental tests in, 814
- enrollment in, 815
- for feeble-minded, 428
- geographical news service to, 800
- normal, attendance at, 808
- for Professional Social Work Association of, 409
- vocational, Roman Catholic, 745
- war service of, 798
- Scialoja, Vittorio, 156
- Scientific research (*see also* Research), 607
- effect of war on, 580
- Screw-gauge lathe, 588
- Sculpture, 755
- Scurry, 704
- Seal industry, 506
- Seals, killing of, 262
- Seaplanes, Navy, 592
- Searchlights, electric, 578
- Searles Lake, potash from, 651
- Seattle, general strike in, 456
- municipal street railways in, 317
- post development at, 314
- Secondary education, reorganization of, 801
- Secret Service, U. S., 195
- Secretaries, Federal. *See* departments by name.
- Securities, depreciation of, 391
- investment, prices of, 342
- new issues of, 341, 355
- listed, 354
- Security market, 352
- Sedition bill proposed, 60, 61
- legislation on, 293
- Seduction, evidence of, 295
- Seed inspection, legislation on, 499
- Seeds, treatment of, 493
- Seismological Association, International, 622
- Seltz, Carl, 151
- Selenium, compound of, 639
- Semitic languages and literature, 793
- Senate, Sixty-sixth Congress, Committees of, 3, 203
- members of, 202
- organization of, 3
- Republican Party in, 3
- filibuster in, 1
- investigation of steel strike by, 25
- League of Nations Covenant in, 7
- Peace Treaty in, 9
- President *pro tempore* of, 3, 194
- Sentences, indeterminate, 432
- Serb-Croat-Slovene State. *See* Jugo-Slavia.
- Serbia, representation of, in Peace Conference, 70
- Sewage disposal, 319
- A. E. F., 666
- purification of, 649
- Seventeen-year locust, 495
- Sex, determination of, 668
- education, 805
- hygiene, education in, 423
- Shad fishery, Hudson River, 504
- Shawens, opera, 764
- Shantung, importance of privileges in, 92
- Peace Treaty provisions on, 90, 102
- problem in Peace Conference, 90-94
- promise of Japan to restore, 92
- Sheep industry, 486, 498
- price of, 512
- scab, 489
- slaughtered, 485
- statistics of, 513
- Shellshock, 425
- Sherman Anti-trust Act, Cases under, 362
- Shipbuilding, 542, 547, 598
- facilities, war-time expansion of, 599
- Government programme of, 43
- Shipping in Army transportation, 332
- Board, U. S., 199
- policy of, 43
- ships controlled by, 547
- built, 547
- built by Allies and neutrals, 185
- in foreign trade, 546, 547
- German, surrender of, 104, 546
- Government control of, 42
- Government ownership of, 547
- legislation on, 547
- mail payments to, 547
- subsidies, 547
- sunk by submarines, 185
- tonnage of, U. S., 546
- world's, 546
- undocumented, 547
- Ships, concrete, 568, 572, 600
- electric propulsion of, 576
- Government, disposal of, 600
- stresses in, 606
- treatment of, 699, 707
- Shock, physiology of, 689
- Shoe industry, 540
- Shoes, price of, export, 539
- Shop signs, 765
- Shorelines, physiography of, 627
- Short ballot, extension of, 224
- Siam, Peace Treaty provisions on, 101
- Siberia, American troops in, 44, 327

- Siberia, foreign troops in, 45
 — Republic of, 156
 Siberian railroad, operation of, 44
 Sidelink *v.* York Shore Water Co., 274
 Sideral Universe, structure of, 614
 Signal Officer, Chief Army, 196
 Silicon compounds, chemistry of, 640
 Silver certificates in circulation, 376
 — discoveries of, 514
 — dollars, value of, 377
 — exports of, 377, 383, 535, 548
 — control of, 384
 — imports of, 535, 551
 — metallurgy of, 520
 — mining, 519, 520
 — price of, 377, 514
 — — U. S., 519, 531, 532
 — — by states, 533
 — world's carnage of, 530
 Sims, Adm. Wm. S., 339, 340
 Singing, community, 415, 765
 Sinking fund, Liberty loan, 368
 Sinn Fein, activities of, 145
 — members of, in British Parliament, 140
 — suppression of, 147
 Skinner & Eddy Corporation *v.* U. S., 564
 Sleeping sickness, 695
 Smetonas, Antanas, 158
 Smith, J. Allen, Co. *v.* Southern Ry., 563
 Smith *v.* Brown, 283
 Smith, Capt. Roy C., 263
 Smith, Sidney Y., 195
 Smith-Hughes Act, expenditures under, 806
 Smith-Sears Vocational Rehabilitation Act, 807
 Smith-Towner Education bill, 803
 Smithsonian Institution, 200
 — Act collections of, 753
 Smoke, chemistry of, 638
 — nuisance, 254
 Smoking. *See* Tobacco.
 Smuts, Gen. Jan C., Premier of South Africa, 149
 Smyrna, occupation of, by Greece, 159, 168
 Snow crystals, art motives in, 620
 Snowden, Rear-Adm. Thomas, 127
 Sobralite, 620
 Social and economic problems, 401-446
 — hygiene, 422-424, 714
 — Association, American, 423
 — Board Interdepartmental, 423, 806
 — Insurance, 464, 469
 — organizations, federation of, 408
 — philosophy, 724
 — problems, relation of economics to, 737
 — progress, theories of, 735
 — psychology, 735
 — reconstruction, 723, 735
 — service, hospital, 413
 — Statistics, Bureau of, 423
 — welfare, 464-468
 — state provisions for, 405
 — work, case treatment in, 404
 — of the churches, 435
 — community activities in, 407
 — conferences of, 410
 — current tendencies in, 401
 — education for, 409
 — effect of cost of living on, 403
 — effect of war on, 401
 — Family, American Association for Organizing, 405
 — financing of, 407
 — National Conference of, 403, 404, 408, 410
 — organized, 401-413
 — personnel for, 409
 — Professional Association of Training schools for, 409
 — psychiatric, 405, 427
 — of Red Cross, 413
 — rural, 408
 Social work, vocational classification of, 410
 — Workers' Exchange, National, 409
 Socialism, 438-440
 Socialist Conference, International, 447
 — Party, divisions of, 438
 — — strength of, 64, 438
 — press censorship of, 439
 — Third International, 440
 Socialists, election returns of, 257
 Society of American Painters, Sculptors, and Gravers, 754
 — of Independent Artists, 754
 Sociology, 734-737
 Sodium as fertilizer, 651
 Soils, acidity of, 650
 — Bureau of, 198
 — Appropriations for, 477
 — chemistry of, 649
 — surveys and investigations, 302
 Soldier Settlement Act, of Canada, 134
 — — National, 62, 307, 497
 — acts, state, 307, 497
 Soldiers, disabled, Red Cross Service to, 412
 — discharged, educational bonuses for, 798
 — employment of, 322, 471
 — placement of, 444
 — farm lands for, 307, 446, 482
 — Government insurance for, 391
 — homestead entries by, 296
 — preferential public employment of, 210, 212
 — vocational rehabilitation of, 807
 Solicitor-General, U. S., 196
 Sorel cement, 602
 Sound, physics of, 660
 South Africa, history of, 149
 South America, geology of, 617
 South Carolina, legislation in, on budget, 372
 — on cotton warehouse insurance, 498
 — on race segregation, 293
 South Dakota, constitution of, amendments to, 234
 — geological investigations in, 301
 — geological map of, 302
 — gold mining in, 520
 — legislation in, on banking, 388
 — road bond issue in, 308
 — taxation of credits in, 374
 South Oregon Co., decision relating to, 296
 South San Francisco Chamber of Commerce *v.* Southern Pacific R. R. Co., 563, 564
 Southern Baptist Convention, 740
 — Presbyterian Church, 744
 — Rhodesia, *In re*, 270
 — Rice Growers' Association *v.* Texas & New Orleans R. R. Co., 563
 Soviet government. *See* Bolshevism, 154
 — Russia. *See* Russia, 165
 Spain, American credits in, 367
 — archaeological investigations in, 731
 — elections in, 162
 — history of, 162
 Spanish literature, 787
 Spanish-American War, health conditions in, 698, 711
 Spaulding, Frank E., educational programme of, 801
 Speaker of House of Representatives, election of, 3
 Specific heats, 661
 Specifications, standard, A.S.T.M., 605
 Spectroscopy, 661
 Spectrum analysis, 661
 Spillman, W. J., 475
 Spitzbergen, given to Norway, 162, 634
 — coal mining in, 634
 Spleen, physiology of, 676
 Springfield, Ohio, elections in, 257
 Square, 703
 Square Tower House, 733
 Stabler, Jordan H., 195
 Stahlberg, K. J., 158
 Stambulowsky, Premier of Bulgaria, 159
 Standard Oil Co., housing projects of, 248
 Standard Oil Co. (Cal.) *v.* A. T. & S. F. Ry., 563
 Standard specifications, A. S. T. M., 605
 Standardization, electrical, 573
 — of railroad equipment, 587
 Standards, Bureau of, 199
 — electrical research in, 579
 Starch syrups, 645
 Stars, heat of, 614
 — variable, 613
 State administration, 223-227, 230
 — banks. *See* Banks.
 — boards, consolidation of, 224-226
 — budgets, 226, 227, 372
 — capitals, table of, 215, 216
 — cement plants, 226
 — constitutional conventions, 223, 230
 State constitutions, amendments to, 230-235
 — constitutions, table of, 215
 — courts, table of, 219-221
 — Department of, 194
 — departments of agriculture, 499
 — of law enforcement, 226
 — employment systems, 471
 — finance, 372
 — geological surveys, 300-303
 — government, popular movement in, 230
 — government, tables of, 213-221
 — governors, powers of, 223, 224
 — — reconstruction conference of, 223
 — governors, table of, 215, 216
 — health departments, 717
 — highway departments, 311
 — income taxes, decisions on, 276
 — industrial enterprises, 226
 — judiciary, table of, 219-221
 — laws, uniform, 273
 — legislation. *See* subjects and states by name.
 — legislatures in session, 372
 — table of, 217, 218
 — parks, 762
 — police, 226
 — public welfare departments, 405
 — referendum on Federal amendments, 277
 — tax commissions, 374, 375
 — taxation, legislation on, 372
 — Secretary of, 194
 — Under-Secretary of, 194
 States, assessed valuation of property in, 214
 — area of, 213
 — dates of admission of, 213
 — debts of, 214
 — expenditures of, 214
 — population of, 213
 — quotas of, in armed forces, 172
 — receipts of, 214
 — reconstruction activities in, 223
 — Relations Service, 198
 — — appropriation for, 476
 — tax levies in, 214
 Statistical Association, American, 737
 Statistics, 736
 — uniform, of mental diseases, 430
 Status, judicial decisions on, 289-290
 Statz *v.* F. Mayer Boot & Shoe Co., 284
 Steam boilers, 581
 — legislation on, 472
 — engine governors, 582
 — engineering, 581
 — Bureau of, Navy, 197
 — locomotives, 586
 — feed water of, 586
 — fuels for, 586
 — turbines, 581
 Steamboat Inspection Service, 196
 Stearn *v.* Prentice Bros., 272

INDEX

- Steel alloys, 522
 - castings, 522, 588
 - electric, 654
 - corrosion of, 605
 - defects in, 604
 - electric, production of, 525
 - electrometallurgy of, 654
 - fatigue of, 605
 - flakes in, 524, 604
 - furnaces electric, 579
 - gun, 523
 - high-speed, 604
 - industry, 521, 536
 - magnetic analysis of, 605
 - manufactures, exports of, 537
 - metallurgy of, 522
 - chemistry in, 524
 - phosphorus and sulphur in, 605
 - production of, U. S., 521, 531, 532
 - world's, 528
 - by principal countries, 530
 - radiography of, 524
 - rails, manufacture of, 523
 - structural, price of, export, 539
 - testing of, 605
 - X-rays in, 524
 - trade, 345
 - workers, strike of, 24, 458, 521
- Steels, alloy, 604
- Stefansson, Vilhjalmur, explorations of, 633
- Stellar energy, sources of, 614
- spectra, Draper Catalogue of, 609
- Sterilization of criminals, 727
- Stevens, John H., 44
- Stewart, Col. George E., 327
- Still oil engine, 585
- Stillwater, Minn., city planning in, 241
- Stock Clearing Corporation, 360
- dividends, ownership of, 280
- exchanges, regulations affecting, 361
- market, 352
- prices, 353
- swindling, movement against, 361
- transactions, 341, 354
- Transfer Act, Uniform, 273
- Stock-raising homesteads, 296
- Stockholders, minority, rights of, 280
- Stockyards, licensing of, 497
- Stoneham, Re, 271
- Storage batteries, 655
 - warehouses, 656
- Stralnograph, 606
- Strasburg Steam Flouring Mills v. Southern Railroad Co., 563
- Stratigraphic geology, 301
- Strauss, Adm. Joseph, 332
- Strauss, Richard, 765
- Strawberries, ever-bearing, 500
- Strawberry Hill Land Corporation v. Starbuck, 307
- Street lighting, 578
 - railways, 559
 - fares on, 315, 316, 559, 576
 - strikes on, 455
- Streptococcus hamolyticus, 695
- Strikes, 453-460
 - of actors, 458, 768
 - in Canada, 136
 - of coal miners, 26, 459
 - in Illinois, 460
 - in clothing trades, 455
 - of express drivers, 454
 - general, in Seattle, 456
 - in Winnipeg, 136
 - in Great Britain, 143
 - of harbor workers at New York, 22, 312, 453
 - illegal, 283
 - of metal miners, 515
 - of newspaper writers, 460
 - of policemen in Boston, 24, 65, 457
 - of printers in New York, 460
 - of railroad shopmen, 39, 457
 - of steel workers, 24, 458, 521
 - of street railway workers, 455
 - of teachers, 809
 - of telegraphers, 41, 459
- Strikes, of telephone workers in
 - New England, 459
 - of textile workers, 454
- Structural materials, production of, 531, 532
- Students Army Training, Corps, 322, 797
- Styrk v. Unichowicz, 284
- Subrez, Marco Fidel, 126
- Submarine Defense Association, new fuel of, 582
- Submarines, shipping sunk by, 185
- sunk, 185
- wireless communication with, 577
- Subways, construction of, 571
- Suffrage. See Woman suffrage.
- Sugar, beet, production of, 481
 - production of, U. S., 475
 - seed, supply of, 481
 - cane, diseases of, 493
 - production of, U. S., 475
 - consumption of, 645
- Equalization Board, 16
- in Hawaii, 265
- malt, production of, 645
- production of, U. S., 509
- world's, 506
- by principal countries, 508
- Sulphur, compounds of, 639
 - effect of, in steel, 605
 - mining of, 657
 - in plant nutrition, 686
 - in soils, 649
- Sun, eclipses of, 611, 660
 - effect of, on earth's magnetism, 623
 - spots, 611
- Sunday laws, 292
- Sunflower, Russian, as forage crop, 481
- Superinduction in internal-combustion engines, 584
- Supreme Court, U. S., 208
 - U. S., decisions by. See subjects and cases by name.
- Surety insurance, 397, 398, 400
- Suretyship, law of, 280
- Surgeon-General, Army, 196
 - Office of, anthropological section of, 729
- Navy, 197
- Public Health Service, 196
- Surgery, 706-711
- Surveying, aerial, 572
- Surveys, aerial, 631
 - Coast and Geodetic, 199
 - detailed areal, 301
 - educational, 814
 - geological. See Geological surveys.
 - hydrographic, 629
 - magnetic, 622
 - municipal, 241
 - topographic, 300
- Sweden, history of, 163
- Swedish literature, 785
- Sweet clover, cultivation of, 481
 - potato weevil, 495
- potatoes, production of, 343, 500
- Sweeting v. American Knife Co., 291
- Swine. See Hogs.
- Swiss cheese, manufacture of, 484
- Switchboards, electric, 575
- Switzerland, elections in, 163
 - history of, 163
 - Socialism in, 440
- Syndicalism, criminal, 291, 469, 473
- Synthetic drug industry, 658
 - Products Co., sale of, 542
- Syracuse, aviation landing places at, 244
- city planning in, 241
- Syria, history of, 164
- TACNA-Arica dispute between Chili and Peru, 126, 131
- Taft, Wm. H., attitude of, towards League of Nations, 8
- Tagore, Rabindranath, 149
- Take-all, 491
- Tanks in A. E. F., 191
- Tanning materials, 540
- Tariffs, British, 142
 - Canadian, amendments to, 134
 - British Preference, in, repeal of, 134
 - Commission, industrial studies of, 544
- Tarrant "Tabor" airplane, 593
- Tax administration, 374, 375
 - Board, Advisory, 370
 - commissions, state, 374, 375
 - income. See Income tax.
 - levies in leading cities, 259, 260
- Taxation in Canada, 134
 - exemption of Liberty bonds from, 367
 - of live stock, 498
 - municipal, 239
- Taxation of products of child labor, 52, 370, 371
 - state, legislation on, 372
 - tendencies in, 372
 - war finance by, 365
- Taxes, bank, 373
 - corporate, income, 369-371
 - state, 372, 373
 - estate. See Taxes, inheritance.
 - excess-profits, 370, 371
 - Federal, 369-371
 - income, Federal, 369-371
 - state, 373
 - inheritance, Federal, 370, 371
 - state, 373, 374
 - insurance, 372, 373
 - luxury, 52
 - property, 374
- Taylor, Henry C., 198, 475
- Tchalkovsky, 156
- Teachers, American Federation of, 809
 - of immigrants, training of, 804
 - male, 815
 - organizations of, 808
 - salaries of, 796, 807, 815
 - shortage of, 807
 - statistics of, 815
 - strikes of, 809
 - unions of, 450, 809
- Telegraph companies, statistics of, 558
 - employees, wages of, 40
- Telegraphers, strike of, 41, 459
- Telegraphs, Government control of, 40, 577
 - Government ownership of, 41
 - return of, to owners, 42, 558
- Telephone, 577
- Telephone apparatus, vacuum-tube, 577
 - circuits, 577
 - rates, 40
 - service, rights of borrowers of, 281
 - workers, strikes of, 459
- Telephones, automatic, 577
 - Government control of, 577
 - Government ownership of, 41
 - return of, to owners, 42, 558
 - statistics of, 558
- Telephony, 577
- Telescopes, astronomical, 610
- Tellurium, compounds of, 639
- Temperatures, deep-well, 615
- Temple Dancer, opera, 764
- Tennessee, areal surveys in, 301
 - constitution of, amendments to, 230
 - legislation in, on banking, 388
 - in, on workmen's compensation, 398, 470
- Railroad Commission of, 375
- soil investigations in, 302
- Terre Haute, community singing in, 765
- Terrestrial magnetism, 622-623
- Territorial governors, table of, 216
 - integrity, guarantee of, by League of Nations, 79
 - legislatures, table of, 218
- Territories and dependencies, 261-269
- Teschen, hostilities over, 165
- Testing materials, American Society for, specifications of, 605
- apparatus for, 605
- Texas Agricultural Experiment Station of, 477
 - archeological investigations in, 733

Texas, Board of Control of, 225
 — constitution of, amendments to, 230, 234
 — county road bond issues in, 309
 — geological investigations in, 301
 — irrigation law of, 306
 — legislation in, on administrative reform, 225
 — — on budget, 372
 — — on minimum wage, 469
 — — plnk bollworm of cotton in, 494
 — taxation of corporations in, 372
 — teachers in, 808
 Tewfik Pasha, 160
 Textile industry, strikes in, 454
 — Workers of America, Amalgamated, 455
 Textiles, exports of, 537
 — manufactures of, 536
 Theatre, commercial management of, 772
 — Guild, 770
 Theatres, wandering, 415
 Theology, 723
 Third International, Socialist, 440
 Thomas v. Mississippi, 294
 — v. Moon, 290
 Thomason v. Bescher, 278
 Thompson, Wm. Hale, 256
 Thrace, disposal of, 116, 117
 Three Lakes Lumber Co. v. Washington Western Ry. Co., 562
 Thrift stamps, 369
 — campaign for, 404
 Thumps, 490
 Thymus, physiology of, 676
 Thyroid gland, physiology of, 675
 Tidd v. Skinner, 290
 Tiffany, Louis C., art benefactions of, 753
 Timber, resources of, 501
 Tin, price of, 514
 — production of, world's, 528
 Tinoco, Federico, 127
 Tips, prohibition of, in Iowa, 295
 Tilton, Tommaso, 156
 Tobacco, price of, 512
 — production of, U. S., 343, 474, 509
 — — by states, 510
 — — world's, 506
 — — by principal countries, 508
 — smoking in the Army, 706
 — relation of, to tuberculosis, 706
 Todd, Capt. D. W., 340
 — George Carroll, 196
 Toledo, lockout of automobile workers in, 459
 — Socialist vote in, 438
 — water supply of, 318
 Tomatoes, antiscorbutic value of, 704
 Topographic maps of U. S., 298
 — surveys, 300
 Toronto, water filtration at, 648
 Tors against infants, 286
 — law of, 281-287
 Towers, Commander J. H., 337
 Town Planning (see also City planning), Conference, Inter-Allied, 252
 Trade, acceptances, 379
 — balance of, 346, 553
 — disputes, See Labor disputes.
 — fixtures, 281
 — foreign, See Commerce, Exports, and Imports.
 — restraint of, decisions on, 294
 — restrictions on, abolished, 14
 — transportation, and communication, 546-564
 — Union Bureau, International, 447
 — — Conference, International, 447
 — — League, Women's, 449, 451
 — unions, See Labor unions, 473
 Trademarks, German, sale of, 542
 Transportation, electric, 576
 Transports (see also Army transports), 321
 Transylvania, annexation of, by Rumania, 160

Treasurer of the U. S., 195
 Treasury, Assistant Secretaries of, 195
 — certificates of indebtedness, 368, 369
 — Comptroller of, 195
 — Department, 195
 — gold holdings of, 375
 — savings certificates, 369
 — Secretary of, 195
 — estimates of, 51
 Treaties, control of, by League of Nations, 81
 Trees, diseases of, 492
 — overhanging, law of, 271
 Trial, waiving right to be present at, 294
 Trichinosis, 490
 Triplett v. Columbia, 283
 Trotsky, Leon, 156
 Trust companies, resources and liabilities of, 383
 — laws, See Anti-trust law.
 Tuberculosis, bovine, eradication of, 488, 498
 — effect of smoking on, 706
 — in U. S. Army, 697
 Tumulty, Joseph P., 194
 Tungsten industry, 522
 Tunnels, highway, at New York, 577
 Turbines, g.s., 585
 — steam, 581
 — water, 575
 — governors for, 585
 Turbo-generators, steam, 575
 Turkey, ethnographic map of, 632
 — history of, 160
 — hostilities of, with Greeks, 168
 — Peace Treaty provisions on, 101
 — U. S. High Commissioner in, 340
 Turkhan Pasha, 159
 Turmeric, chemistry of, 643
 Turpin v. Victoria Palace, Ltd., 271
 Tusar, Vlastimil, 158
 Tutulla, See American Samoa.
 Typhoid fever in U. S. Army, 698, 699, 711, 714
 — vaccination against, 699, 714
 UKRAINIA, history of, 159
 — hostilities of, with Poland, 165
 Underwriters Excess Association, 395
 Unemployment (see also Employment), 442-446, 448, 471
 — public work for, 471
 Unfair competition, decisions on, 287
 Uniform state laws, 273
 Union of Canadian Municipalities, 256
 — of Evangelical Churches, movement for, 739, 746
 United Christian Missionary Society, 740
 — Kingdom (see also Great Britain), 138-147
 — Lutheran Church, 740
 — Mine Workers v. Coronado Coal Co., 462
 — Presbyterian Church, 744
 United States, geography of, 616
 — Guards, in war, 173
 — Housing Corporation, See Housing Corporation.
 United States v. Brooklyn Eastern Terminal, 275
 — v. Doremus, 276
 — v. Colgate, 294
 — v. Gerstein, 291
 — v. Guden, 294
 — v. Hill, 294
 — v. Krichman, 294
 — v. New England Fish Exchange et al., 362
 U. S. Glue Co. v. Town of Oak Creek, 276
 — Steel Corporation, unfilled orders of, 345
 University Union in Europe, American, 812
 Urriola, Cirlo L., 130

Uruguay, constitution of, 132
 — geology of, 617
 — history of, 131
 — international relations of, 132
 Utah, Agricultural Experiment Station of, 477
 — archaeological investigations in, 732
 — blue-sky law of, 362
 — constitution of, amendments to, 234
 — Industrial Commission of, 472
 — legislation in, on drainage, 307
 — — on health education, 805
 — — on irrigation, 306
 — — on mothers' pensions, 420
 — — municipal home rule in, 239
 — — potash production in, 657
 — — road bond issue in, 308
 — — silver mining in, 520
 — — taxation of mines in, 374
 VACUUM tubes, use of, in telephony, 577
 Vanilla beans, culture of, 501
 Variation, biological, 667
 Vatican Choirs, 765
 Veal, production of, 485
 Vegetables, exports and imports of, 500
 — production of, 499
 Vendor, conditional, title of, 279
 Venereal diseases, 713
 — campaign against, 422
 — among delinquents, 432
 — education on, 806
 — prevalence of, 729
 — in U. S. Army, 698
 Venetians, cotton, production of, 544
 Venezuela, history of, 132
 Venizelos, Eleutherios, 160
 Vermont, city planning in, 244
 — constitutional commission of, 234
 — legislation in, 'on dependent children, 420
 — — on district health officers, 717
 — — on women's work, 470
 Vermont v. Warren, 287
 Versailles, Treaty of, See Peace Treaty, German.
 Vertebrate paleontology, 681-685
 — zoölogy, 670-676
 Veterinary medicine, 488-490
 Vice-President, election of, 194
 Victory Liberty Loan, 367
 — — Act, 51, 365, 366
 — Medals, 326, 755
 Vienna, insurrections in, 151
 Viera, Feliciano, 131
 Villa, Francisco, 129
 Virgin Islands, 269
 — Agricultural Experiment Station in, 477
 — surveys in, 299
 Virginia, areal surveys in, 301
 — coal investigations in, 300
 — constitution of, amendments to, 234, 235
 — drainage-district law of, 307
 — geological investigations in, 302
 — iron investigations in, 301
 — manganese investigations in, 300
 — topographic survey of, 300
 Virginia Iron, Coal & Coke Co., Graham, 277
 Virginia Pine Timber Co. v. New York, etc., R. R., 562
 Viridite, 620
 Vital statistics, 718-722
 — methods of, 736
 Vitamines, 644, 675, 676, 685, 705
 Vocational education, 806
 — in Canada, 134
 — Federal Board for, 807
 — rehabilitation of disabled soldiers, 807
 — — of industrial cripples, 464, 469, 470
 — schools, Roman Catholic, 745
 Volcanoes, 622
 Volstead Act, 57, 437
 Vrooman, Carl, 198

- WAGES, average, 467**
 — equal, for equal work, 469
 — increases of, 466
 — legislation on, 469
 — miners', metal, 515
 — minimum. *See* Minimum wage.
 — payment of, legislation on, 473
 Walver, definition of, 290
 Wales, George R., 200, 210
 Walnut Aphid, 495
 Walnuts, diseases of, 492
 — production of, 499
 Walsh, Charles D., 195
 — Frank P., report of, on Ireland, 145
 War. *See* European War.
 — agencies, dissolution of, 14-16
 — articles of, amendment of, 47
 — Camp Community Service, 402, 414
 — casualties, U. S. *See* Casualties.
 — contracts, liquidation of, 323
 — criminals, Peace Treaty provisions on, 103
 — debt, retirement of, 368
 — Declarations of, 169
 — Department, 196
 — appropriations for, 172
 — bureaus of (*see also* bureaus by name), 196
 — civilian personnel of, 322
 — Claim Board, 45
 — Congressional investigation of, 46
 — contracts, liquidation of, 45
 — Liquidation Commission of, 45
 — expenditures, 325, 365
 — finance, 365
 — Corporation, foreign trade, promotion by, 53
 — Industries Board, dissolution of, 14
 — issues of, course on, 797
 — Labor Board, dissolution of, 14, 460
 — medals, 755
 — awards of, 326
 — memorials in city planning, 245
 — community buildings as, 416
 — parks as, 762
 — Minerals Adjustment Board, 514
 — prevention of, by League of Nations, 77, 79
 — relief, church programmes of. *See* Churches by name.
 — Y. M. C. A., 749
 — savings certificates, 369
 — Secretary of, 196
 — supplies, disposal of, 323
 — Trade Board, dissolution of, 14
 — operations of, 553
 — Work Council, National, of Y. M. C. A., 749
 War-risk insurance, 391
 — Bureau of, 196
 — cooperation of Red Cross with, 412
 War-time prohibition, 56, 437
 Warehouse Act, Amendment of, 496
 — Receipts Act, Uniform, 273
 Warehouses, construction of, for A. E. F., 566
 — licensing of, 498
 Warfield plan of railroad control, 34
 Wasco Co. v. New England Ins. Co., 280
 Washington, Agricultural Experiment Station of, 477
 — appropriation in, for reformatories, 422
 — constitution of, amendments to, 235
 — legislation in, on civil service, 212
 — on irrigation, 306
 — on physical education, 805
 — on rape, 422
 — minimum-wage law of, 464
 — mothers' pension law of, 420
 — tax valuations in, 374
 Washington, State of v. Howell, 277
 Washington, Adm. Thomas M., 197, 340
 Washington, D. C., zoning in, 245
 Water, chemistry of, 637
 — chlorine index of, 648
 — filtration of, 648
 — flow of, in pipes, 585
 — power leasing bill, 61
 — surveys, 299, 573
 — utilization of, 299
 — purification of, 648
 — resources, investigations of, 362
 — softening, 649
 — supply, 317
 — companies, liability of, 284
 — development of, for A. E. F., 566
 — grants of public lands for, 297
 — transportation, Government control of, 555
 — turbines, 575
 — governors for, 585
 Waterfront development, 244
 Waterways, and harbors, 311-314
 — Inland, National Committee on, 555
 — traffic on, 554, 555
 — use of, 570
 Wealth of belligerents, 170
 Weather Bureau, 198, 623
 — appropriations for, 477
 — effect of, on business cycles, 738
 — forecasting, 624
 Webb v. U. S., 276
 Weed Lumber Co. v. Southern Pacific R. R. Co., 563
 Weeks, O. J. & Co, case, 646
 Weir, J. Alden, 200
 Weiss v. Gordon, 284
 Welding, electric, 579, 606
 Welles, Adm. Roger, 340
 Welsh Presbyterian Church, union movement in, 744
 West Indies, palaeontology of, 684
 West Virginia, constitution of, amendments to, 235
 — legislation in, on district health officers, 717
 — taxation of corporations in, 372
 Western European Affairs, Division of, 195
 — Philosophical Association, 723
 Western Union Telegraph Co., 558
 — v. Bowles, 275
 Wheat, control of export of, 15
 — diseases of, 491
 — flour, consumption of, 645
 — Kanred, 478
 — "Liberty" programme of, 474, 475
 — price of, 344, 512
 — export, 539
 — price guarantee on, 15
 — production of, U. S., 343, 474, 509
 — by States, 510
 — world's, 506
 — by principal countries, 508
 White, H. A., Auto Co. v. Collins, 279
 White v. Newark, 281
 White-pine blister rust, 491, 492
 Whitehouse, Sheldon, 195
 Whitley plan of industrial councils, 144
 William II, Kaiser, indictment of, 103
 Wills, law of, 272, 281
 Wilmington, Del., port development at, 314
 Wilson, Adm. Henry B., 332, 340
 Wilson, Woodrow, action of, in coal strike, 459
 — on railroad wages, 457
 — assists to draft League of Nations Covenant, 7
 — attitude of, on Peace Conference documents, 10
 — towards convening Sixty-sixth Congress, 1
 — departures of, for Paris, 7, 8
 — illness of, 11
 — Industrial Conference called by, 461
 — intervention of, in coal strike, 27
 Wilson, Woodrow, intervention of, in New York harbor worker's strike, 22
 — in steel strike, 25
 — labor policies of, 21
 — messages of, on budget system, 54
 — on cost of living, 18, 468
 — on industrial relations, 5, 21
 — on reconstruction, 13
 — to Sixty-sixth Congress, First Session, 3
 — Second Session, 5
 — transmitting Peace Treaty, 9
 — vetoing railroad rate legislation, 38
 — relations of, with Congress, 1, 5, 9
 — return of, from Paris, first, 7
 — final, 9
 — speaking tour of, 11
 — speeches of, on League of Nations, 3
 — statement of, on American troops in Siberia, 44
 — on Boston police strike, 24, 457
 — on Flume, 88
 — on League of Nations Covenant, 7
 — on Massachusetts election, 65
 — on national transportation, 32
 — on naval programme, 50
 — on railroad wages, 39
 — on reservations to Peace Treaty, 12
 — on second Industrial Conference, 30
 — on Senate filibuster, 2
 — on Shantung return, 94
 — on treaty of alliance with France, 118
 — on war-time prohibition, 57
 — on wire control, 41
 — term of, 194
 — vetoes by, of Agricultural Appropriation Act by, 496
 — of daylight-saving repeal, 63
 — of Prohibition Enforcement Act, 58
 Wind motors, 587
 — pressure on locomotives, 587
 — tunnels, aeronautical, 591
 Winds, observations on, 624
 Wings of insects, 679
 Winnipeg, general strike in, 136
 Wire Administration, finances of, 42
 Wireless communication, Government control of, 42
 — messages, effect of weather on, 625
 — telegraphy, 577
 — effect of sunlight on, 612
 — Navy control of, 339
 — recording apparatus for, 577
 — stations, 339
 — telephony, in forest protection, 502
 Wisconsin, constitution of, amendments to, 235
 — geological publications of, 302
 — labor laws of, 473
 — legislation in, on civil service, 212
 — on employment agencies, 471
 — on hours of labor, 471
 — on women's labor, 470
 — on workmen's compensation, 470
 — municipal home rule in, 239
 — old-age pensions in, 470
 — Social Insurance Committee, report of, 465
 — soil surveys in, 302
 — soldiers' bonuses in, 798
 Witnesses, hostile, decisions on, 289
 Woman suffrage, Federal amendment on, 58, 227-229
 — status of, 227
 Woman without a Shadow, opera, 765

INDEX

- Women, hours of labor of, 469
- hours of labor of, legislation on, 470
- wages of, legislation on, 469
- Working, International Conference of, 449
- Women's Bureau, 199
- Trade Union League, 449, 451
- Wood, Gen. Leonard, military policy of, 49
- Wool, imports of, 539
- manufacturers, 540
- marketing of, 487
- price of, 487
- Workers' Defense League, International, 451
- Working Women, International Conference of, 449
- Workmen's compensation, decisions on, 291
- Compensation Insurance, National Council on, 398, 399
- — — statistics of, 398, 399
- — — laws, decisions on, 463
- — — occupational diseases under, 716
- — — legislation on, 398, 464, 469, 470
- — — status of, 470
- health insurance, 469
- houses, 249
- World Conference on Faith and Order, 746
- movement Interchurch, 739, 743, 747
- Worms, 677
- Wright v. Wright, 290
- Wyoming, Agricultural Experiment station of, 477
- blue-sky law of, 362
- constitution of, amendments to, 235
- — — legislation in, on budget, 372
- — — on sheep grazing, 498
- road bond issue in, 308
- tax administration in, 374
- taxation of car companies in, 374
- X-RAYS, in crystallography, 664
- physics of, 663
- in steel testing, 524
- YARDS and Docks, Bureau of, 197
- Yellow fever, etiology of, 693
- Young Men's Christian Association, 748
- status of, as charitable corporation, 281
- Young Women's Christian Association, 749
- Youngstown, Butler Art Institute of, 754
- Yudenitch, General, 156
- ZAHLE, C. T., 161
- Zapata, Emiliano, 129
- Zeeb v. Bohmaier, 284
- Zeppelin airplane, 593
- Zinc, electrolytic production of, 528, 552
- electrometallurgy of, 528
- exports of, 550
- industry, condition of, 527-528
- metallurgy of, 527
- plating, 653
- price of, 514
- production of, in U. S., 531, 532
- — — by states, 533
- — — world's, 528
- — — by principal countries, 530
- resources, investigations of, 301
- Zionism, 750, 751
- Zirconium steel, 522
- Zoning, 245
- Zoölogy, evolutionary, 666
- experimental, 675
- invertebrate, 676-679
- vertebrate, 670-676
- Zouche, Baroness, *In re*, 272



